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Municipal Council of Sydney

REPORT

ON THE

City Cleansing Engineer's Department

27th MAY, 1926

THE ROYAL SANITARY INSTITUTE, FOUNDED 1876.
SALUS GENERIS HUMANI.

Presented by

The Town Clerk,

September 1926.

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Municipal Council of Sydney

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CITY CLEANSING

INTRODUCTION.

Vital statistics show that the average life of civilised man has been considerably lengthened during the last few decades.

This great achievement must with all honour be credited to the onward march of Medical Science. Vaccine and anti-toxin have saved more than have been destroyed by the conquerors of history.

Reviewed from its disease prevention aspect, sanitary engineering constitutes one of the most important endeavours of medical science.

The familiar water supply and water borne sewerage system doubtless are the most important result of sanitary science applied to the service of man and the measure of their efficiency is our comparative freedom from many contagious diseases.

Important as these services may be, the hygienic requirements of a large community would be ill met without the activity commonly known as City Cleansing.

It is frequently true that the cleanliness of the interior of a building depends upon the cleanliness of the fronting street, and assuming a dirty condition thereof, in business places, the damage to goods and trade would be considerable.

The abnormal growth of a modern city with its complex domestic and industrial activities has greatly added to the difficulties of, and the demands made on, its cleansing service.

Lofty business buildings, warehouses and flats, wide-spread, densely-populated areas, call for special services; the former increases the idle time in, and the frequency of, collecting operations, and the latter, the subsequent long haul to disposal point, which makes efficient transport most difficult.

The plant possessed by cleansing departments of many large cities is of an extensive character; whilst the modern refuse disposal works partake of many features of the more pretentious power station.

The last December Municipal Engineering and the Sanitary Record gives the following interesting information:—

"The Cleansing Department of the City of Manchester has a staff of 1,760 men, 33 depots and yards, 38 destructor cells, 27 boiler furnaces, 4 estates totalling 3,725 acres, 4 locomotors, 13 barges, 1 steam tug, and a stud of 403 horses, etc. The necessity for extensive plant and organisation will be appreciated when it is remembered that the civic authorities of England and Wales have to handle annually about 11,000,000 tons of refuse."

The purpose of this report is: (a) The re-organisation of the City Council's refuse disposal system. (b) Formation and official adoption of a street-cleansing policy and public education in Civic Hygiene. (c) Vocational training of Block Boy Staff. (d) Re-organisation of City Fund Garage as an integral part of the City Cleansing Department. (e) Redesignation of Field Staff.

RECOMMENDATIONS.

In connection with the foregoing subjects the following recommendations are made:—

1. That tenders be invited in Australasia and abroad for the provision and erection of a Refuse Disposal Works to treat City Refuse described in the accompanying Specification.

2. That the Council officially differentiate between preventable and unpreventable City Refuse with a view to the strenuous administration of By-law 525, and further, to this end, one Liaison Officer and four By-law Inspectors be appointed, to be under the sole control of the City Health Officer.

3. That a Policy of Public Education in Civic Hygiene be inaugurated, and the co-operation of the Department of Public Instruction be sought to have this subject given more practical attention in the schools.

4. That the recommendation of the Superintendent of Technical Education for vocational training of block boys be adopted.

5. *Mechanical Section.* That the City Fund Garage be made a central organisation and an integral part of the City Cleansing Engineer's Department.

6. That the re-arrangement and re-designation of the Field Staff as set out in Schedule be adopted.

REFUSE DISPOSAL.

LABORATORY REPORT
ITS APPLICATION TO REFUSE DISPOSAL.

The efficient collection and disposal of the city refuse is greatly dependent on an intimate knowledge of its constituents.

This knowledge must include the quantity, physical and chemical compositions, and requires a close study of details at the origin of the waste, whether it be household, restaurant or factory, etc.

As the acquisition of a new destructor is no longer optional but imperative, the services of the Electricity Department's chemistry laboratory were enlisted early last year, and an exhaustive and painstaking investigation was commenced as to the nature of the city's refuse.

This work, one of great magnitude, has now been completed, and on this data tenders for a new destructor can be invited in an intelligent way.

Too often in the absence of such data destructors are erected on guess work, and probably this accounts for the frequent failure of plants and the consequent legal and other troubles, often involving large sums of money.

The salient features of the laboratory data can only be reviewed with the intention of their profitable application, when there exists some understanding of the present refuse disposal system and its costs.

The total quantity of city refuse disposed of approximates 88,096 tons at the cost of £26,625 per year.

Four methods of disposal are employed—incineration, punting to sea, tipping, and manure sales.

These services are more detailed hereunder:—

Disposal.	Tonnage.	Cost.
Incineration	37,485	£21,293
Punting to sea	35,923	4,179
Tipping	10,271	1,153
Manure Sales	4,417	——
	88,096	£26,625

Length of haul and class of refuse regulates the flow to each disposal point. The cost of disposal by punting and tipping is reasonable, but that of incineration is absurdly high, to such degree that it almost provokes the question as to whether incineration could not be avoided altogether.

INCINERATION.

Much of the refuse now going through the destructor furnaces entails needless expenditure in disposal.

Turning to our laboratory data, we find that 6,116 tons of sand or screenings are mixed up with the refuse delivered to the destructors during the year. The dampening effect of sand on fire is well known. The resultant excessive clinker on the fire-bar is an additional trouble.

Taking 10s. 0¾d. as the average cost of incineration, 6,116 tons equals £3,077.

Here we would reduce our incineration costs substantially if this incombustible stuff were side-tracked from going into the furnaces—a very easy and inexpensive operation in a modern plant, scarcely adding to its initial cost of delivery.

Again referring to the laboratory data, the following interesting matter occurs:—

Total quantity of saleable paper per year	delivered to destructors	4,000 tons
White Glass	” ” ”	529 ”
Coloured Glass	” ” ”	231 ”
Scrap Iron	” ” ”	306 ”
Rags	” ” ”	110 ”
Bags	” ” ”	141 ”
	Total	5,317 tons

Chemistry as a profession does not readily admit that waste is necessarily useless.

Our chemist, forsaking his laboratory, turned salesman and succeeded in interesting a number of firms of undoubted standing in the mysteries of the City's accumulated refuse bin.

In checking the chemist's interviews, I have no reason to doubt the sincerity of the business people who offered rates as tabulated hereunder for marketable refuse:—

Paper—4,000 tons at 15/- per ton	£3,000
White Glass—529 tons at 25/- per ton	661
Coloured Glass—231 tons at 10/- per ton	115
Scrap Iron—306 tons at £3 per ton	918
Rags—110 tons at £2 per ton	220
Bags—141 tons at 30/- per ton	212
5,317 tons	£5,126

In this case our gain would be twofold—(a) that due to the avoidance of incineration of 5,317 tons of saleable refuse, plus (b) the profit accruing from such sales:

(a) Savings due to avoidance of incineration— 5,317 × 10s. 0¾d.	£2,676
(b) Nett profit due on sale (estimated)	200
	£2,876

By weight the quantity of incinerated refuse would be reduced 30% and existing costs by 27.9% from £21,293 to £15,340.

Viewed as a strictly business proposition, it is not argued that salvage of refuse with purpose of sale and profit is a gilt-edged investment, but dispose of large quantities of refuse we must, and our real concern is a cheap disposal, and, apart from hygienic necessity, incineration is not the cheapest. Also it is not to be overlooked that disposal by incineration begets a second disposal problem, that of the resultant clinker and ash. By this line of thought we arrive at a compromise, that of discriminative incineration. Broadly, refuse delivered to the destructors may be separated into several classes:

1. Non-putrescible and incombustible, such as screenings and ash, which may be side-tracked from the furnaces and used as filling, manure, or tipped.
2. Non-putrescible and useful articles of marketable value; in any case (even if given away) would be a cheaper disposal than by incineration.
3. Putrescible and useless refuse which health reasons dictate destruction by fire.

A direct and valuable consideration is that the elimination of incombustibles from the furnaces means improved combustion and a consequent reduction in the burning cost. Tins, crockery, etc., make weak spots in the burning bed of refuse; through these weak spots the air of the forced draught rushes, with inimical results. To some degree, an excess of paper is detrimental in the same manner.

A homogeneous burning quality in refuse on the fire-bars is very desirable, and at the present stage of destructor development ''discriminate'' incineration seems to most nearly approach this condition.

The application of the laboratory data to our disposal problem could be further continued, but its greatest use and value will be in providing a powerful inducement for reputable builders of Refuse Disposal Works to submit tenders when invited by the City Council, and to provide such tenderers with indispensable data. In the destructor itself, however, other standards of efficiency yet remain to be considered.

MECHANICAL HANDLING.

The passage of refuse from vehicular tailboard to fire doors is an element in the incinerating method of disposal scarcely less important than the actual burning operation itself. Inspection and consideration of the chaotic and unhygienic condition of a large destructor destitute of mechanical handling appliances will make evident the time and labour waste.

Menaced overhead by frequent fresh deliveries of garbage and knee-deep in earlier arrivals, firemen work under conditions that offend every sense.

The shovelling or feeding radius of the fireman is strictly limited, hence there is a waste of time and labour in clawing and dragging the refuse in position preparatory to feeding the furnaces.

It is well to consider the instance of a Council destructor where about 110 loads are delivered between the hours of 8.45 a.m. and 4.15 p.m.—an average frequency of about 14 loads per hour, with the delivery rate three to four times greater than the burning rate. Taking into consideration the bulky nature of the city refuse, there would be about 6,000 cubic feet of unburnt material in a more or less unsatisfactory position relative to the feeding doors at the termination of deliveries.

In sharp distinction to the foregoing unsatisfactory conditions are the mechanical handling appliances of modern destructors which are inseparable features to efficiency. As typical, the belt conveyor type will only be considered.

This pattern usually takes the form of suitable receiving hoppers under which is a slow-moving belt conveyor, at an upward angle, to suitable overhead storage spaces. From this it is at once evident that all the refuse tipped passes in slow review, thinly spread on a band about 4ft. wide and perhaps some hundred feet in length.

Under these favourable conditions it is possible to provide for rotary or shaking screens to eliminate sand, dust or ashes; electro magnets cunningly fitted and placed to intercept nails, scrap iron, etc., while suitably installed exhaust fans whisk up paper and deliver it to a baling press or bin. If full salvage is desired, articles such as glass, brass, bags, etc., are picked off the conveyor and placed in bins by pickers seated on each side of the conveyor. For greater clearness, it is desirable to re-state and tabulate these and other desirable features.

Suitable mechanical handling plants are indispensable adjuncts to efficiency in a large destructor; it actively facilitates the following:—

(1) Prompt tipping and quick getaway of vehicles even at peak-load deliveries.
(2) Elimination of waste time and labour in handling refuse.
(3) Elimination of incombustibles such as sand and screenings.
(4) Hygienic handling and storage of refuse, also first deliveries are first burnt.
(5) The actual burning operations not being hampered by peak-load deliveries.
(6) Discriminate incineration is made possible and desirable for economic reasons.
(7) Last, but most desirable, the favourable effect on the human factor, the man who does the job.

MECHANICAL FEEDING.

It will be helpful to visualise a unit quantity of refuse (say one ton) after its passage from the cart, through the screen, along the belt conveyor to the firing platform. At this stage, in accordance with the principle of discriminate incineration, all incombustibles and useful articles have been eliminated, to a desired degree, leaving only putrescible garbage and rubbish, and it now remains to feed this to the fires.

The elimination of tins, wire, bottles and other unyielding material is desirable where it is proposed to instal mechanical feed, and, in keeping with the efficient features before described, this type of feed is desirable.

Numerous types are in use and the method has undoubtedly got past the experimental stage. The avoidance of personal contact with garbage and cold air gaining entrance to the furnaces are important features of mechanical feed.

CLINKERING.

Manual clinkering is objectionable for the following reasons:—

(1) Time and labour waste.
(2) Possible injury to fire brickwork and cooling of fires by inrush of cold air.
(3) Thermal waste.

(1) The breaking of large masses of clinker and raking into trucks or conveyor buckets impose severe physical discomfort on the fireman from heat and dust, whilst the maintenance cost of plant (trucks) is not inconsiderable.

(2) Fire-brick construction is extremely susceptible to injury, and the breaking up of clinker on the fire-grate doubtless reduces the useful life of the brickwork, while contributory also would be sudden expansion and contraction due to inrush of cold air, owing to open fire doors.

(3) Large masses of clinker contain considerable heat, both in quantity and intensity. This source of waste might be made available for the pre-heating of air of the forced draught in place of a regenerator.

One type of mechanical clinkering grate is an arrangement where the whole grate of a particular fire is drawn by a hydraulic ram into a recess, the ash and clinker falling into the ashpit below, where, in cooling, it gives up its heat to the incoming forced draught.

SITUATION OF DESTRUCTOR.

The position of the disposal point relative to its collection area is of great importance; it regulates the type of transport to be used, and even the method of disposal to be adopted. There is no doubt that the unfortunate example of our destructors, particularly the "park" plant, has created a most erroneous opinion of destructor operations which, under modern conditions, are marked by freedom from smoke, odours, dust, or any nuisance whatever. In external appearance it may be constructed to harmonise with good environment—records of this are numerous in cities abroad.

Unweighed opinions are sometimes advanced that a destructor should be banished to the most remote position possible, regardless of haulage costs. In this regard, and as an example, it will be interesting to place our disposal point a mere half-mile further out and analyse the effect on haulage costs.

The average cost per day for a Council outfit or a private outfit (driver, horse and cart) is 29s. 10.8d. per day. Taking generous travelling rate of 3 miles per hour, this runs out $\frac{29/10.8}{8\frac{3}{4} \times 3}$ = 1s. 1.5d. per cart per mile. Taking 110 carts in the Department doing 4 loads per day = 110 × 4 × 1/1.5 = £24/15/- per day. Assume 300 working days per year, thus, £24/15/- × 300 = £7,425, added cost for an extra mile travel, a half-mile each way.

This is an example only to convey the saving which may be effected by short haulage. But it is sufficient to establish that we must have a short haul, or in a never-ceasing tax, pay heavily for unnecessarily lengthy haulage.

Reference to the disposal chart (Schedule A) will show that there are two localities for general disposal (not incinerating only)—Moore Park destructor and vicinity, and Pyrmont destructor with punt nearby. The former accounts for 34,000 tons at an average rate of 7/11 per ton, and the latter 49,000 tons at an average rate of 5/3. The latter figure is striking, since, though 10s. 10¼d. per ton is the actual burning rate of Pyrmont destructor, full advantage being taken of the low punt rate 1/9 per ton, the higher figure is reduced to 5/3. This instance again gives point to the policy of discriminate incineration, *i.e.*, reserve this more costly method for putrescible and readily combustible refuse. This city is fortunately placed for cheap disposal, for sinkable refuse, by punting to sea, and the greatest possible use should be made of this cheap service.

WESTERN DISPOSAL POINT.

In area served, quantity of refuse disposed and low costs thereof, it has already been shown that the Western disposal points (Pyrmont destructor and punt) are the most important and is the most suitable locality in the event of the acquisition of a new works.

Pyrmont destructor, unhappily, is placed just short of the water's edge, for, as before remarked, disposal by incineration imposes a secondary disposal problem, that of clinker and ash; and this problem may be solved by punting. Other sinkable refuse separated out before burning may be punted to sea, as this is cheaper than burning. Therefore, full account must be taken in our deliberations of this secondary disposal service by punt in fixing the site of the new works.

Tabulated details are as hereunder:—

Name of Works.	Quantities.	Elements of Work Charges.	Disposal Point Charges.	Cost per ton.	Total Cost.	How Disposed.
Pyrmont Destructor.	6061 tons.	1/9 per ton puntage charge. 2/7 per ton cartage to punt from Destructor.	1 Tally Man 1 Labourer (on wharf). Ratio charge against Destruction, £100 per year.	4/4.	£1320.	Puntage to sea.

Placing the works at the punt wharf, Gipps Street, would be an ideal arrangement, thus linking up the two disposal systems, incineration and puntage to sea.

The advantages would be:

(1) Collection carts delivering to punt or destructor would go over the destructor weighbridge, eliminating wages of tally clerk and one labourer;

(2) Carts hauling clinkers from destructor to punt would not be necessary; and

(3) The whole situation would, during all hours, be under the supervision of shift officer in charge of destructor—a most important consideration.

The figures run out are:

One Tally Clerk	£273 per year
One Labourer	257 ,, ,,
13% Holidays, etc.	68 ,, ,,
Two Carters and Outfits	783 ,, ,,
	£1,381 per year

This is a monetary leakage well worth the stopping if practicable.

Gipps Street, leading to the wharf, is bounded by Saxton and Binns' and the Imperial Oil Co. on either side. If the street and 250 ft. additional width could be procured, this space would be sufficient.

One disadvantage to this scheme would be the concentration, and possible congestion, at one point of many transport units. Apparently the only alternative to the Gipps Street position is the present site, with a new destructor well laid out and with the necessary facilities. It could be easily arranged for carts on their return trip from the destructor to deliver the clinker to the punt. Allowing 5 minutes for receiving a load, and 5 minutes for tipping at punt, the present cartage charge against the destructor would be reduced from £783 to about £120 per year.

It would be possible to have the punt wharf placed right opposite the existing destructor and connected thereto by a conveyor or bridge. However, the extra 4/5th mile to be travelled by units and the cost of conveyor or bridge would not warrant this step. The successful utilisation of clinker for pavement-making or concrete would affect a double saving—cartage and puntage. Few local records are available of this practice, but from reliable accounts this is done abroad.

TINS.

The safest method of disposal locally is to put this waste through a baling press, the better for cheap transport; and, in the absence of a foundry market, punt to sea.

BY-PRODUCTS.

Heat, steam and power are interchangeable terms, and the utilisation thereof has received attention in the mechanical section of this, report, garage re-organisation.

SPECIFICATION AND GROUND PLAN.

A tentative specification with ground plan has been prepared and accompanies this report.

EASTERN REFUSE DISPOSAL POINT.

The possible expansion of the city makes it inadvisable to consider Moore Park destructor at this stage. One other disposal feature worthy of attention is the 10,000 tons of street sweepings and manure buried at the park tip. This manure is made useless by the litter contained, but it is very probable that this could be removed very cheaply and efficiently. A self-feeding bucket conveyor, oil engine or motor-driven, discharging on to a shaking flat screen or to a rotary screen, thence delivering to a baber fly-trap, is quite practicable. At the stage where the material leaves the screen, a powerful exhaust fan, with its hood suitably placed, would remove the litter. Such an installation is simple and can be operated by one man. This scheme is quite contingent on a use being found for the material, and I understand that the Park Authorities have such need.

It may be interesting to note that the City of Manchester is owner of a number of farms leased on the condition that the lessee uses the manureal refuse collected by its Cleansing Department.

MARKET REFUSE.

The quantity of this troublesome waste approximates 4,000 tons per year.

Until recently the Russell By-Products Co., at a charge of 15/- per ton to the Council, removed this waste, and by a system of heat treatment reduced it to a manure commodity.

This practice has now been discontinued at the Company's instance, consequently the market collection and disposal has reverted to the Cleansing Department.

Enquiries overseas have lately been made regarding alcoholisation of fruit refuse, and, pending a satisfactory reply, incineration and burial are the only available means of disposal.

TRADE REFUSE.

The removal of trade refuse comprises a large part of the activities of the Cleansing Service.

Trade Refuse is collected by the Eastern, Western and Night Divisions of the Cleansing Service, and, in addition, there is a special Trade Refuse Division consisting of 12 carts, 12 drivers, 10 labourers. The Council derived revenue from this source for the year 1925 to the amount of £34,824.

One of the most difficult problems that has exercised the minds of municipal authorities within recent years is the question of the removal of trade refuse, the points at issue being:—

i. A Council's responsibility for the work.
ii. The legality of charges made for service rendered.
iii. The differentiation between domestic garbage and trade refuse.
iv. The granting of a free allowance of trade refuse.

Legally, it has been held that the position with regard to the above issues by our own Council is clear and definite. By the Act of its creation—the Sydney Corporation Act—a duty has been cast on the Council to remove all filth and refuse matter from the city and premises therein. Further, the legality of the charges, the differentiation between domestic garbage and trade refuse, and the schedule of charges are provided for by By-Laws Nos. 1094-1102.

The question has been raised however, that the By-laws act inequitably, to the detriment of business premises and the advantage of householders, both of whom contribute rates and taxes to the Council.

The owners and occupiers of business premises point out that there is no justification for any distinction being made respecting the civic service rendered each in return for rates and taxes paid the Council.

The present practice of the Council is to allow an unlimited free service for the removal of domestic garbage and to charge for all trade refuse.

Trade refuse is removed either (a) by contract or (b) casually. There are in existence some 3,000 contracts, the minimum being 1/- per week. About 50% of the contracts range from 1/- to 2/- weekly.

To give business premises the same relative service that householders enjoy, viz., "an unlimited free service," would mean that the above-mentioned contracts would become void, and the loss in revenue to the Council per annum would be £34,824, and this, of course, cannot be considered.

To give satisfaction to the public, there appears to be two courses open to the Council:—

1. A reduction in the charges all round.
2. Making a free allowance of 6 c.f. of trade refuse per week to each rateable property.

1. There will be no difficulty in the future in the way of reduced costs, for, as pointed out elsewhere, the re-routing of the carts in one section alone has already resulted in the reduction of the cost of collection and transport by 2/6 per ton. Also the construction of a modern destructor with discriminate incineration will make a large reduction in the cost of disposal.

2. This course will in effect mean the abolition of all contracts 2/- and under, and, in addition, a pro rata reduction on all other contracts. Loss of revenue estimated at £15,000 per annum.

In addition, the introduction of this system is attended with difficulties, particularly when it is considered that in the city proper, where most of the business premises are located, a 6-day service is given, in contradistinction to the outlying districts, where residences abound, which enjoys a tri-weekly service. Even this allowance will only, to a degree, remove the anomalous position between the householder and the occupier of business premises.

Of the two courses open to the Council, I am of the opinion that the ratepayers' interests will be best met by an all-round reduction in the cleansing charges. To this end I recommend that in the first instance the cleansing charges be reduced by 12½%.

COLLECTION AND TRANSPORT.

The subject of collection and transport of the city's refuse is introduced here for the sake of reference, and to emphasise the necessity for an intimate knowledge of the city and its requirements by the Supervisory Staff, if efficiency is to be attained by the units of the cleansing service.

As elsewhere, this element of collection and haulage work constitutes the most troublesome and costly to be performed.

Varying weight characteristics of refuse are perplexing. In one district it may be easy to get one ton of refuse on a cart, whilst from another locality, on the same cart, a really honest effort at packing will only give a load short in weight. In many cities where organisation pertaining to cleansing work is far advanced, various methods are adopted to get an efficient collection service. These methods are all similar in one respect, that they make an exacting demand on the co-operation of the public and the organisation of the department concerned. In any case, it is the product of slow and painstaking thought and effort on the part of the civic administration.

The re-routing of carts now in progress has resulted in collection and transport charges in one locality being reduced by 2/6 per ton.

The hourly cost of transport for the Cleansing Service is in the region of £18. In view of this large expenditure, the necessity for careful routing and full loads is apparent.

Efficiency in routing and in other work elements of cleansing is greatly dependent on an intimate knowledge of the City in all its details. As an aid to the Supervisory Staff, a contour map of the City of Sydney has been constructed.

It is intended that this map will ultimately form the basis of a mass of useful data, the absence of which has long been a hindrance to the efficient progress of the department.

STREET CLEANSING.

The logical results of relying on cleansing operations only for the attainment of clean streets are:—

(1) Clean streets regardless of high costs

(2) at, say, a fixed reasonable cost, streets as clean as circumstances will permit.

Both are unsatisfactory, the former uneconomical and the latter invariably unhygienic; and frequently both faults obtain.

A combination of the economical and hygienic factors may be stated thus:—Clean streets at reasonable cost;
and this is obtainable by a further combination:—
a street dirt prevention policy in addition to approved pavement cleansing methods.

An effective street dirt prevention policy is difficult of attainment, but it is also the most indispensable feature in the maintenance of clean street; it affects and modifies all other factors, cleansing methods, etc.

A thorough appreciation of the great scope of a street dirt prevention policy requires consideration of the origin and nature of the numerous substances contributory to a street's uncleanliness. In origin and nature these substances may be easily grouped under two headings: preventable and unpreventable. Inspection of Schedule G will make this clear.

Preventable street dirt is the objective of By-Law 525, and receives further consideration under "Public Education in Civic Hygiene."

Unpreventable street dirt, though a much greater menace to health, in most localities forms a small part only of the sum total of street refuse.

To stress the importance of street cleansing, it would be difficult to do better than to quote the following medical opinions:—

Dr. C. A. Soper, in "Modern Methods of Street Cleansing," states:—

"The city uses its streets in a very different way than does the village. The streets of the city are not only arteries of travel; they are at once places of amusement, health resorts, and business places for the people. Here persons of all ages and all tastes go to meet one another to talk over the affairs of the day, to be entertained, to eat, to drink, to inspect shop windows, to do marketing, to buy and sell merchandise, and to perform a thousand offices which the exigencies of the city life make profitable, healthful and agreeable.

"The city streets connect every household. The city man not only moves through the streets; he carries the dirt of the streets into his home on his boots and clothing; he gets his food and air through the streets. Unfortunately, both food and air are contaminated.

"It is not pleasant to consider the nature of these contaminating matters. They consist of the pulverised excretions and rejecta of thousands of human beings and animals, the wastes of hundreds of factories and shops, and, in fact, the product of ceaseless wear and tear of everything perishable in the city. It is a rule of sanitary science that what is once rejected and cast off by the body shall not again be taken into it; but here we have all manner of excretory products taken into our bodies by food and air in plain violation of this law.

"It is well to study thoroughly this question of city dirt. Ground into impalpable powder and raised from the pavements by the wind, it hangs in the atmosphere and can plainly be seen in the air like a haze on a calm day. The quantity held constantly in suspension is so great that it affects the city's climate. It discolours our persons and our clothing; it turns marble and even granite yellow and black.

"The city street, like its progenitor, the country highway, is a natural outlet for filth. Here refuse of all kinds is cast from the houses. Windows are raised when rooms are swept; doors are opened when sweepings are ready to be brushed out; rugs are beaten on sidewalks and roofs; dogs are taken out on a leash to defecate; the kitchen garbage is set out on the sidewalk for scavengers to remove; old clothing and dead animals are thrown into the gutter; ashes are cast upon the carriageways; human beings expectorate, and children urinate and defecate upon the pavements.

"The pavements themselves are ground down by wear and tear and, where broken, contribute a considerable amount of dirt to the streets. Every waggon-load of sand, coal, garbage, ashes or other loose material adds its contribution as it passes. No house is built or torn down that does not add to the dirt in the streets."

Also our City Health Officer, Dr. Purdy:—

"It is estimated that 1,000 horses will, in every week day of eight hours, deposit about 500 gallons of urine and ten tons of dung upon the streets. The residue of this horse dung—*i.e.*, the undigested external coating of hay, oats and chaff—form a conspicuous ingredient of city dust.

"It is believed that summer diarrhoea of infants is associated to some extent with the dust, especially horse droppings, in streets."

For money expended there is no doubt that the average cleanliness of our streets is capable of marked improvements, particularly in the outlying localities.

This improvement, as before stated, is readily obtainable by elimination of many causes contributory to a dirty condition of streets.

The necessity for a street dirt prevention policy and public co-operation will be more evident consequent on an examination of the extensive nature of street cleansing, from details hereunder tabulated.

TYPE.	MILEAGE.	SWEEPING AREA.
(a) Neuchatel	1.84	40,626
(b) Concrete	1.27	14,051
(c) Bituminous	6.17	149,511
(d) Wood pavings	29.24	656,122
(e) Metalled & Stone paved	97.7	1,441,337
Total	136.22	2,301,647 sq. yds.

(1) NIGHT CLEANSING STAFF.

From the schedule items A, B, C and D total approximately 39 miles of the best pavements and serve the first-class business areas of the city.

All nights, Saturday excepted, these streets are machine swept, flushed, and certain foot pavements hand swept. Total cost, £21,000.

(2) BLOCKBOY DIVISION (DAY WORK).

The above operations cease at 6 a.m., and at 7.30 a.m. the "follow on" service (Blockboy Division) takes control of practically the identical area just cleansed by the night staff. Total cost, £30,700.

(3) DUAL SERVICE REFUSE COLLECTION AND STREET CLEANSING.

The streets cleansed by this section are those contained on (e) which serve the outer parts of the city. A labourer is attached to each cart on collection runs. During the absence of the cart to dispose of its collection, the labourer attends to street cleansing work in the route of the next run. Separate costs against collection and street sweepings are not yet available. It is estimated that about 33% of the staff's time is occupied with street sweeping, including transport, and the yearly cost of this service is £21,000.

From (1), (2) and (3)—

Night Cleansing	£21,000	
Blockboy Division	30,700	£72,700
Dual Service, etc.	21,000	

The outstanding feature of the preceding 1 and 2 is that apparently it is necessary to follow up the night cleansing work (£21,000 per year) with the Day Blockboy Division (£30,700 per year). The adoption of an efficient dirt-prevention policy would reduce this second charge by at least 40%.

ADOPTION OF TYPE OF PAVEMENT CONDUCIVE TO CLEANLINESS.

In many great cities abroad consideration of efficient street cleansing and cost constitute no unimportant factor as to the selected type of pavement. A poor surface in wear and tear contributes towards its own uncleanliness and the dust nuisance. In the former instance, cleansing operations are necessarily more frequent and costly; and the latter requires the frequent use of the sprinkler cart.

In sharp distinction, good smooth pavements permit the most efficient method of cleansing. In this connection the power flusher has become a serious rival to the machine sweeper, and even supplanting the sprinkler, apparently on the grounds that a really clean pavement, being free of dirt or dust, requires no sprinkling.

Elsewhere, for reasons of policy and responsibility of departments concerned, street refuse has been defined as preventable and unpreventable. For health considerations, the former and latter may be also defined as street defacements and pavement pollution respectively. For example, a good pavement, carefully broomed and flushed, may look untidy because littered with newspapers, etc. On the other hand, a street swept clear of litter, but not flushed and broomed, may appear quite clean.

The former instance is a clean street looking dirty, and the latter a dirty street looking clean.

Some authorities point out that street dirt of a pollutory nature, sputa, excreta of animals, etc., mixed and pulverised to an invisible degree on the pavements, require the application of water for its effective removal rather than the painting action of sweepers.

ORNAMENTAL TREES.—These, when not of an evergreen variety, are a source of annoyance to the public and cost to the Department when, for about three months in the year, the gradual process of shedding leaves is in progress. The indigenous tree is mostly evergreen, and it appears reasonable that, in further street ornamentation, this class of tree should receive preference.

PUBLIC EDUCATION IN CIVIC HYGIENE.

A few minutes' observation of any street will disclose the fact that a large section of the public are possessed of slovenly habits, in as much as they litter the streets with paper, rubbish, etc., which comes under our previous classification as Preventable Street Refuse.

All sections of the community are tainted with this defect.

The barrowman cheerfully jettisons his unsaleable wares in the gutter; a motorist, under the necessity of getting "out and under," inserts a newspaper between himself and the street surface as a ground mat. Usually he resumes his way, leaving some half-dozen sheets of paper to deface the street's tidiness, and, as often happens when washed down by rains, the paper blocks up the outlet pipe or grate of some gully shaft. The result, of course, is flooded areas and consequent damage to property and blame to the City Council.

Seemingly affluent persons may be seen absend-mindedly tearing letters into tiny fragments, and Miss Sydney daintily steps to the kerb and thoughtfully empties her purse of the previous week's tram or 'bus tickets into the gutter. Omnibuses are swept clean of tickets at their termini, and other industrial vehicles, debris laden, flagrantly add to the sum total of the street untidiness.

If the cost of night street cleansing (£21,000) had its equivalent in work of a durable character, such as a building, and a person dared to damage it, drastic action would be the immediate consequence. But apparently costly work, but of a transitory nature such as a clean street, may be defaced at will.

Durability is the essential factor if ever street cleansing is to give satisfaction and economy.

The deserted streets of the city at night may be cleaned in a wholesale fashion at cheap cost, but in the day-time little can be done for the littered gutter and foot pavements—the former lined with almost endless queues of cars, the latter inaccessible with its jostling stream of pedestrian traffic and a forbidding by-law.

It is comforting to know that the litter may ultimately become quite accessible as it is swept by some friendly zephyr into shopkeepers' premises, who, in their endless endeavour to maintain a tidy appearance with broom and pan, thus become a useful, if cynical, adjunct to the blockboy staff.

Three methods must be employed to secure the co-operation and interest of the public in civic hygiene. These are:—

1. Legal correction.
2. Public propaganda and education.
3. The inclusion of practical instruction in the syllabus of schools.

Relative to legal correction, By-Law 525 is quite clear on the matter. It states:—

> "No person shall upon any street in the city sweep, throw or place any matter or thing that may interfere with the cleanliness of such street, or cause annoyance, danger or accident to persons using same."

It will be interesting to learn to what degree has the work of the City Cleansing Department had the support of this by-law. Prosecutions are as below:—

1924	1925
52	32

This seems to argue well for the cleanly habits of the community, but direct tests thereon were not so complimentary. A number of tests were carried out; one only will be related. The intersection of King and Elizabeth Streets, the S.W. corner, 50 yards down each street, was swept perfectly clean. During one hour between, 8.30 a.m. and 9.30 a.m., the following litter was deposited on the pavements:—

Tram Tickets	202
Paper Scrap	3
Newspapers	2
Cigarette ends (9)	207

It seems safe to assume that at one point, and within one hour, about 200 individuals signified their contempt for, or ignorance of, By-Law 525 by breaking it.

A little reflection will almost induce sympathy for the 32 unfortunates of last year's prosecutions.

Figures denoting the extent to which legal correction is carried out in cities abroad are not plentiful. However, in New York City, in 1915, 5,400 persons were arrested for violating ordinances relating to street conditions and the scattering of refuse. In addition to these arrests, in the last three months of the year more than 18,000 formal written warnings were issued for the violating of ordinances.

In one large Department of our Council the position of a safety officer at £650 per annum was created to reduce the number of accidents to its staff, which cost the Council £1,924 in 1924. This expenditure is in the nature of an insurance premium. It seems quite logical that street cleansing work to the amount of £72,700 per annum should receive similar special attention, and in this way the appointment of a Liaison Officer with four assisting By-Law Inspectors, costing £1,700 per annum, would give results well worth the expenditure, and which would be only on the principle involved. The Liaison Officer and Inspectors should be men with cleansing experience. The Liaison Officer would connect the interests of the Health and City Cleansing Departments, and his salary equally shared by each.

In connection with the Safety Officer cited, it is admitted that the moral obligation to protect life is greater than any financial consideration; there exists also the moral obligation to have clean streets, and, as has already been shown, a by-law without teeth induces contempt.

PUBLIC PROPAGANDA AND EDUCATION RELATIVE TO THE HOUSEHOLD OR OFFICE BIN.

No city cleansing organisation can be complete or efficient without a publicity side to its endeavour.

Where refuse disposal is scientifically conducted, either with salvage operations in view or merely destruction, the interest and co-operation of the householder must be enlisted.

A clear understanding and goodwill relative to the intelligent use of the refuse bin between the householder and the cleansing service is worth money.

A sparse use of the bin will, in the total, greatly reduce the quantity to be collected, transported and disposed. As a result of vigorous propaganda in this direction the quantity of household refuse collected by the Salvage Department of the City of Birmingham, England, was reduced by approximately 14,000 tons in a year. Applying this locally, and taking the cost of collection and transport at, say, 16/- a ton, this would result in a saving to this city of £11,258.

Where salvage is the objective, the dual bin system is installed, saleable matter is segregated, transport assisted and final disposal rendered much easier and more profitable. Generally, the result is efficiency, low costs, and mutual satisfaction.

In some of the world's largest cities, with all their disadvantages of numerous and large foreign colonies therein, co-operation and interest of the householder and citizen generally has been enlisted with most hygienic and economical results.

If this organisation is possible under adverse circumstances, surely its accomplishment in this city, with its population alike in quality, education and aspiration, should be easy of consummation!

INSTRUCTION IN CIVIC MATTERS IN THE SCHOOL CURRICULUM.

Whilst vigorous propaganda and legal correction are quite useful measures in stimulating or exacting civic pride, far more efficient and lasting in its effects would be concentration and point given to this subject at our schools.

From the Education Department and the Government Statistician the following data was secured as to the number of schools and scholars within the Metropolitan area: —

	SCHOOLS.	SCHOLARS.
State	182	137,000
Private	315	46,000
	497	183,000

Owing to reasons of uniformity the State schools only will be considered at present. As this scheme develops it might advantageously be extended to embrace denominational and private schools. In this area, conveniently grouped at 182 points, we have 137,000 scholars, future citizens of this great city, assembled under the direction of one organisation, the Department of Education.

Also representing Civic Government there are 55 authorities within the same area. It seemed quite a practical scheme for the civic authorities to contribute towards a common fund to defray prizes awarded to concentrate and give practical point to civic teaching already on the syllabus.

A headmaster of a leading City High School kindly consented to review the subject, and hereunder is an expression of his views.

CIVIC HYGIENE AND THE SCHOOL.

There is already set out in the Syllabus of Instruction for schools under the Department of Education a definite course of civics teaching.

While many schools find avenues through which their civics instruction may be made practical, there is still too much of the teaching which is merely instruction, and opportunities of "doing" instead of "talking" would be welcome in many schools, so long as the activities were of such a nature as children would participate in.

The offer of prizes to be awarded in accordance with a satisfactory scheme would concentrate attention upon this subject, and the result would be of advantage to both the Councils and the schools.

WAYS IN WHICH COUNCILS WILL GAIN.

Concentration on the subject of practical civics in the schools could result in the following ways to the advantage of Councils:—

(1) There would be less paper and litter generally dropped about the streets. These would be deposited in organised receptacles.

(2) There would be fewer electric light glasses broken.

(3) There would be less disfigurement of walls, fences, etc.

(4) There would be greater protection to trees, flowers and fences in parks.

(5) There would be more care of the books borrowed from the Municipal Library and greater attention paid to their condition.

(6) There would be increased respect for, and greater protection of, public property generally.

(7) There would be participation, whenever possible, in beautification schemes, such as tree-planting in public places.

The effect of such a scheme as this that is now proposed may best be illustrated by reference to another organisation now working among public school children.

The Gould League of Bird Lovers in its first year enrolled about 20 members. Within a dozen years the number had increased to well over 230,000. What would it mean to the Councils of New South Wales if, within the State, there were a quarter of a million people actively striving for civic cleanliness? This condition of things is possible.

CONCERNING THE SCHEME.

The details of the scheme must have the approval of the Department of Education.

No compulsion can be placed upon schools to force them to participate. Only those teachers need take part who can see in it a means of bringing some reality into their civics teaching.

Any interior inspection of the activities of a school necessary to decide an award shall be made by an Inspector of the Department of Education.

PRIZES.

There may be prizes for the collective work of schools or classes, or for the individual work of a teacher or pupil.

A prize may be awarded for:

(a) Any practical result of benefit to the Council concerned, resulting from the teaching of the subject of Civics.

(b) Any scheme showing originality in the sphere of practical civics.

CONCLUSION.

In conclusion, it should be pointed out that enlistment of the activities of children in such a scheme as is here outlined, immediately arrests the attention and secures the sympathy and assistance of others, for it may be prophesied concerning this as in many other spheres, that "a little child shall lead them."

TRAINING OF BLOCKBOYS.

The difficulty of the blockboy has been an unsolved problem for many years. His trouble is one inevitable to all blind alley occupations—the boy suddenly assumes the status of manhood with all its dignity and privileges, but often finds that, like Othello, his occupation is gone. True, the blockboy is most often retained as a blockman, but the evil remains, an inefficient unit in the civic state.

As far as departmental expenditure is concerned, the position generally is unchanged, since the following matter, which fully explains the situation, was forwarded to the Town Clerk:—

"That part of the Cleansing Service usually designated Blockboy Section is costly beyond reason.

"The cause of this is that, of the 174 units comprising this section, approximately 91 are adults, there being only 83 boys.

"The annual wage bill of the section as at present constituted is £33,239. The block graph marked Schedule D adequately explains how this already unsatisfactory state of affairs will become worse from year to year as the remaining blockboys attain their majority.

"Graph Schedule C (upper graph) shows the annual increasing cost of this progressive defect.

"If the whole adult portion of this section is replaced by boys, then the lower graph clearly shows the decrease in expenditure.

"Block-sweeping is essentially a boy's work. His ability and youth permit of his working in the traffic with a greater degree of safety than a man. In these circumstances, I am of the opinion that Council's interests will be conserved by absorbing as many of the 91 adults of this section on other work in the Council's service and replacing by boys."

It might be pointed out that the cleansing figures for the current year's estimates were based on the assumption that a scheme would be adopted by the Council which would result in the Department being relieved of a considerable sum now spent in employing men to do boys' work.

Mr. John Nangle, Superintendent of Technical Education, as an educationist requires no introduction. On submitting the knotty blockboy problem to this authority, the solution was soon forthcoming and is contained in his report.

SYDNEY TECHNICAL COLLEGE,

18th January, 1926.

THE TOWN CLERK,
TOWN HALL,
SYDNEY.

Dear Sir,

In accordance with your request, I have looked into the matter of education of the blockboys engaged by your Council in street cleansing service. I understand the desire of your Council is that something should be done towards training these boys, in order that they may be able to pass into other employment at a suitable age, and so prevent their being retained on street cleansing work until and over adult age. I discover from the interesting data supplied to me that, as the age increases, the annual cost of employment is such as to make the cleansing very costly, and that it is the desire of the Council to lessen this cost if possible. On the other hand, from the social point of view it must be desirable in the minds of the Aldermen to have as many as possible of these boys pass into occupations that will make them more or less skilled workers. This side of the question at any rate appeals very strongly to me. This community is so highly organised that unless apprenticeship for skilled work is entered into before a certain age, all chances of becoming mechanics or other skilled workers are lost. Unskilled proportionately highly paid boy labour is actually one of our social evils, since it is the cause of an unnecessary number of unskilled workers amongst our adult population. Apart from the loss of creative power and consequent loss of wealth, there is the tragedy of the unemployableness of the unskilled worker. It seems to me therefore that responsible institutions like your Council should be amongst the first in the community to do everything possible to lessen the evil.

Only a comparatively few of the total number of boys in the community are able to stay at school until the age of sixteen or seventeen years. As a matter of fact, a very large percentage leave school and become wage earners at about the age of fourteen. It is almost an invariable custom in this country to fix the age of entry into apprenticeship for skilled trades at sixteen years. Some relief has been given in this connection during recent years, so that in many of the trades a boy can enter up to the age of seventeen. (The fact should be emphasised, however, that this is the latest age at which entry into a skilled trade can be made.) It follows, therefore, that even those who do leave school at fourteen years of age and enter into apprenticeship a couple of years later, have to bridge the difficult gap of two years between leaving school and becoming apprenticed. The others (unfortunately a very large number) through force of adverse circumstances never become learners in any skilled calling. The dangers attendant on the period between fourteen and sixteen years of age could be counteracted to a very large extent if boys could be induced to attend some kind of part-time school designed to continue their general education in addition to some kind of hand training. We have in this State a very fine kind of school known as the Junior Technical School. This is a pre-vocational school covering the three age years from thirteen to sixteen. These schools give a training which provides a very good preparation for entry as apprentices into any kind of skilled work. I feel very strongly that your Council should establish a course of instruction on similar lines for the blockboys.

The idea of establishing such a school must, however, be preceded by a decision to restrict employment in block service to an age not exceeding seventeen years. As far as I can learn, strong boys of fourteen years of age can commence the street cleaning work. If this be so, employment on block service could cover the period from fourteen to seventeen years of age. If this decision were arrived at, an excellent step would be taken towards abolishing the continuance of employment until and over adult age in this kind of work, which after all is very unsuitable as employment for those over boy age. I am, therefore, urging the Council to seriously consider the question of restricting service in the block boy department to the maximum age of seventeen. In the event of a decision of this kind being arrived at, I would urge the establishment by the Council of a special training school for the block boys. This school could work with every chance of success on the syllabus now in operation in the Junior Technical Schools of this State. A copy of this syllabus is being forwarded with this report. Briefly described, the syllabus covers instruction in

English, Elementary Mathematics (Arithmetic, Mensuration and Elementary Geometry), Elementary Science and Hand Training in Cardboard, Modelling, Woodwork and Metalwork. Each boy should be allowed to attend this school on one afternoon each week from 2-5 o'clock, and on two evenings per week from 7-9 o'clock. The accommodation required would be as follows:—

Two workshops (each about 50ft. x 30ft.), one for Cardboard Modelling and Woodwork, and the other for Metalwork.
A Science room (also about 50ft. x 30ft.).
A lecture room (40ft. x 40ft.).
An office (10ft. x 12ft.), and
A store room (about 10ft. x 15ft.).

The equipment in the way of benches, tools, science apparatus and furniture would cost about £2,000. This would represent the capital expenditure on plant and equipment necessary to establish the school. It has occurred to me that possibly accommodation might be found in the Queen Victoria Market Buldings. Such accommodation would be quite satisfactory, and would be well situated as regards access. The teaching staff necessary would be two full-time day teachers for the Handwork (one of these would teach Cardboard Modelling and Woodwork, and the other would teach Metalwork). The subjects of English, Mathematics and Science would be taught in the evenings. Consequently the teachers for these subjects would be employed in the evenings only, and would be what are described in my Department as part-time teachers. The salaries of the two full-time teachers of Handwork would amount to £858 per annum. The teachers of the evening work would cost about £850 per annum. This makes a total of £1,708 for salaries. Class materials, lighting and incidentals would cost about £500 per annum. Thus the total annual expenditure would reach £2,208 per annum. A timetable of studies attached to this report gives also the number of boys taken by each teacher at each session. The programme shows that, with the staff described, 150 individual boys could be dealt with each week.

Boys emerging from the training such as would be afforded by this School would have a very good chance of getting into apprenticeship, even with private employers. I believe, however, that a fair percentage of the boys would be quite eligible for apprenticeship in the technical departments of the City Council.

The fact, however, cannot be overlooked that there would be a percentage of boys who would fail to qualify in the School, and who would be without aptitude for any particular kind of skilled work. This I believe would happen in spite of reasonable care in selecting boys for employment. Some provision should therefore be made to prepare in some special way those who would be unfitted for other than labouring work. I believe that attendance at the School would in itself tend to improve the boys, even though their lot in life would be following occupations classed as labouring. At any rate, they would be better citizens. I think, therefore, that some effort should be made to improve the physique of the boys. Improved physique would be of value even to those who might become apprentices, but physical strength is indispensable to the labourer. I am consequently recommending that a gymnasium be established in addition to the pre-vocational school. The gymnasium might be attached to the school. The space required would be approximately 60ft. x 30ft. Equipment for the gymnasium would cost about £200. The salary of an expert part-time teacher would be about £200 per annum. Boys on service should be required to attend this gymnasium for at least one hour per week. This hour for any particular boy should be so arranged as that it would come on an afternoon other than that on which he would attend for instruction in the pre-vocational school. I would suggest here again that the boy devote an half-hour from his luncheon time, and that half an hour be added to that by the Council out of working hours. There is nothing very new about this proposal. On the Continent there are plenty of examples of successful schools of training in both mental and physical development.

There can be little doubt that if the Council decide to adopt some such proposal as I suggest, the Director of Education would agree on my recommendation that the School come within the jurisdiction of the Branch Department of Technical Education; provided that the Council desired such an influence. If the school were placed within the jurisdiction of this Branch

Department there would be available expert inspection by competent officers and a sympathetic and interested supervision by the Superintendent. The proposal embodied the idea that the Council should establish and maintain the School under the influence and general supervision of the Branch Department of Technical Education of this State. An alternative would be the establishment of such a School directly by this Branch Department, the cost being defrayed by the City Council.

There is every reason to expect that if some such scheme as this be carried into effect, the Council will be able to relieve itself of the enormous expense annually due to the gradual absorption of boys who become adults whilst on block service. The expenditure per annum would be something like £2,408. In view of the fact that something like £20,000 or £30,000 would be saved per annum, such an expenditure would be more than justified from the material point of view alone. The indirect social value would, however, be incalculable. A better type of boy would be attracted to employment on block service. Such boys would be attracted by the obvious advantages offered not only as regards the continuance of their education, but by reason of the fact that they would have an excellent chance of being properly prepared for and getting into apprenticeship. There is every reason to believe that these advantages would attract such a large number that some systematic selection could be made in order to assure a good type of boy.

Yours faithfully,

(Sgd.) J. NANGLE,
Superintendent.

P.S.—Attached hereto for your information is a copy of letter addressed by me to various Associations of Employers (during 1924) in reference to the Junior Technical School Course. This sets out in detail the objects of the Course, and will doubtless be of interest to you.

TIMETABLE SHOWING hours of instruction and number of students taken in afternoon classes in HANDWORK and evening classes in SCIENCE, ENGLISH and MATHEMATICS. The timetable shows a staff capable of giving instructions to 150 individual boys per week. The Staff is the smallest that can be employed so as to enable instruction in the various subjects to be given. The estimate of the number of boys to be instructed is 150. This estimate is based on the number likely to be available from the City Cleansing Staff. The number could be increased to close on 200 without increasing the Staff.

No. OF STUDENTS.

Subject.	Period.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Total Students.	Teachers Required.	Salaries.
Woodwork	2-3.30 p.m. 3.30-5 p.m.	15 15	15 15	15 15	15 15	15 15	150	1	£450
Metal Work	2-3.30 p.m. 3.30-5 p.m.	15 15	15 15	15 15	15 15	15 15	150	1	£408
Science	7-9 p.m.	30	30	30	30	30	150	1 1	£300 £250
English	7-8 p.m.	30	30	30	30	30	150	1	£300
Mathematics	8-9 p.m.	30	30	30	30	30	150		

SYDNEY TECHNICAL COLLEGE.

COPY of letter addressed to various Associations of Employers in reference to re-organised scheme of Junior Technical School Course.

Dear Mr. President,

I am hastening to thank yourself and the members of your Association for the kindness shown in allowing me to address your members recently. It was a privilege which I appreciated very much, and I am sure that some useful results will accrue from it.

In accordance with my promise made at the meeting, I am now forwarding a resume of what I said during my address:—

Pre-vocational schools, known as Junior Technical Schools, were established some time ago with a view to providing a proper training for boys who intended to become learners as apprentices in the different skilled trades. Recently the Director of Education reviewed the syllabus of these schools and the methods of working, and as a result of this review has made considerable changes and alterations with the hope of overcoming difficulties which have arisen.

One of the most important changes is that in future boys proceeding through these schools will at the end of the course have reached the Intermediate standard of the High Schools in English and Mathematics. This change will ensure the boys being reasonably well-grounded in two very important branches of general education, and will, I feel sure, be welcomed by all interested in the training of apprentices.

Elementary Science holds in the course a place next in importance to the subjects of English and Mathematics, and is so designed as to give the students an intelligent idea of some of the more important facts in the Science of physics and chemistry, particularly in the Mechanics section of Physics. The elementary Science Course aims also at developing skill in manipulation of apparatus, and in this respect will help very materially in the development of manual skill. Plane and Solid Geometrical Drawing also occupies a very important place in the course—the idea in view being to give the students a good knowledge of Practical Geometry, and to develop an interest in the subject by relating it very closely with the Science and Handwork.

Handwork consists of some training in Cardboard, Wood and Metal work, but the exercises have been designed strictly with a view to developing habits of accuracy and neatness in carrying out simple exercises. The exercises will be interesting to the students, and have a useful end in view because they mostly consist of making pieces of apparatus necessary in the Elementary Science Course. The Handwork is, moreover, very closely related to the Geometrical work and the Scale Drawing—the latter being done in pencil only with the most rigorous attention given to accuracy and neatness in execution. The course is very deliberately so designed as not to lead until very near its end to any particular trade, but is intended to give a sound preparation for a very wide group of callings.

The course will cover three years. Normally it will be commenced by boys of about the age of thirteen years. In the first year, most of the time will be given to a continued study of subjects in general education, a small proportion of the time being given to elementary and extremely simple Science and to handwork in cutting and forming cardboard models of geometrical form, and to very simple exercises in Woodwork. The Handwork of this year will be practically an extension of what is known as Manual Training in Primary School work. The First Year will be taken in the Primary Schools, but the Superintendent of Technical Education will be responsible to the Director for the efficiency of the Handwork.

In the Second Year of the Course each boy will attend at two schools. For his general education he will attend a school known as the Junior Technical School in which he will continue his general education. For his technical instruction, however, he will attend a Trades School in the Branch Department of Technical Education. Each week he will be at his school three days for general education. On the other two days of the week he will attend a trades school in the Department of Technical Education for Elementary Science, Woodwork, Metalwork and Drawing (including Geometrical).

During the Third Year he will attend a Technical College during the whole of each week, but even at the College he will continue his general education, giving a little more to the Handwork than in the two previous years. As a matter of fact, he will give two days per week to general education and three days to technical. In this last year he will complete his studies in Elementary Science, and will finish his training in the Handwork of Drawing, Wood and Metal work. It is intended, however, in this year that he shall spend the last three months undergoing special vocational training for the particular career which he intends to adopt when he goes into apprenticeship. In the first year, the technical instruction will be given under the general direction of the Superintendent of Technical Education, and will be carried out to his satisfaction. In the second and third years, the technical instruction will be given by teachers under the general direction of the Superintendent of Technical Education, and will be carried out to his satisfaction. In the second and third years, the technical instruction will be given by teachers under the immediate control and direction of the Superintendent of Technical Education, and this officer will be responsible to the Director for the efficiency of the teaching.

I feel convinced that the revised course, re-organised as it is in the light of the experience gained during more than a decade of years, will be found to give satisfactory results. The main idea underlying it is that boys shall proceed to apprenticeship reasonably efficient in their general education, that they shall have had sufficient training in Handwork to both discover and develop aptitude for a suitable calling and to enable the officers of the Department to advise and direct them into such callings.

One very important feature of the new system is that I as Superintendent of Technical Education am now in a position to do something towards putting good and suitable boys into touch with employers who need apprentices. Despite many efforts made in the past, there has been up to the present no means in existence whereby a boy with aptitude for a certain trade could be brought into touch with an employer who would be willing to take him as an apprentice. My experience for some years now has been almost heartbreaking in this respect. Hundreds of boys of excellent character and ambition, and very likely to succeed, have come personally under my notice, and I have been able to assist them with advice as to what callings they should follow, but I have been unable to put them into touch with employers who would take them as apprentices. It has been none-the-less a matter for concern to me when I have known that there must have been employers who would have been quite willing and indeed anxious to take boys of good character whose aptitude for a skilled calling would be beyond question.

In advising the Director of Education when the Junior Technical Course was being re-organised into its present state, I gave the assurance that provided the course were laid out as it now is, there would be no difficulty in getting employers to recognise the value of it, and to take into apprenticeship the boys who successfully passed through.

The object of my recent address was to ask the members of your Association to sympathetically extend to me their help in getting these boys placed as apprentices. In my opinion, there should be no real difficulty in carrying out this most important obligation. As an officer immediately responsible to the Director for the technical education of these boys, besides being well-acquainted with their technical aptitude, I will also necessarily know much about the standard of their general education and of their ambition and character as boys. I will therefore be in a position to guarantee any boy who will be recommended by me to employers. This will remove one great difficulty which has existed in the past in that employers will not need to fear being burdened with undesirable and troublesome apprentices. These boys will pass out into apprenticeship on the full understanding that they carry my recommendation with them, and so in a large measure my reputation. They will thus be under an obligation, which if not legal, will nevertheless be a fine moral one, and I will have no fear about their failing to do my recommendation ustice. It seems to me, therefore, that if I can recommend to an employer boy whom I know to be of good character and anxious to succeed and who s an aptitude for the calling carried on by that employer, there should be no ficulty whatever in securing for him a place as an apprentice.

I therefore asked your members to do three things as their part in bringing into effect a scheme which is of the utmost importance to the economic advancement and well-being of the country. These three things are:—

(1) To take as many boys into apprenticeship as the law allows.

(2) To adopt the custom of taking the boys during January of each year. This request being made in view of the fact that the boys will complete their course at the end of the calendar year, and will be seeking employment in the early part of the following year.

(3) That employers will let me know in August what number of boys (whether one or more) they can take as apprentices in the January of the next year. By getting this information I will be able to select in view of the special requirements of every individual employer, and to put each boy into special vocational training during the last three months of the year to enable him to enter usefully and with a reasonable degree of certainty into the commencement of a period of training as an apprentice that will eventually lead to his being a good skilled craftsman.

I expect that at the end of this year (1924) three hundred boys who have reached a satisfactory standard will emerge from the third and last year of the Junior Technical Course. These boys will require to be placed as apprentices under the arrangement which I have described.

After much investigation I have proportioned the three hundred boys into four main groups, namely:—Engineering Trades, Building Trades, Artistic Trades and Manufacturing Trades. The proportion is as follows:—

Engineering Trades ..	90
Building Trades	90
Artistic Trades	80
Manufacturing Trades	40

Each group has been subdivided as follows:—

Engineering Trades.

Boilermaking	7
Blacksmithing	5
Patternmaking	7
Moulding	14
Fitting and Machining	20
Brass Finishing	6
Electrical Mechanics	14
Electrical Fitters	10
Motor Mechanics	7
	90

Building Trades.

Masonry	4
Bricklaying	14
Carpentry and Joinery	21
Plastering	7
Plumbing	21
Painting	12
Woodworking Machinery	11
	90

Artistic Trades.

Printing—	
Composing	7
Presswork	8
Lithography	6
Process Engraving	7
Bookbinding	4
Jewellery	14
Electro Plating	7
Cabinetmaking	20
Pottery	7
	80

Manufacturing Trades.

Bootmaking	2
Breadmaking	2
Pastrycooking	3
Tanning	1
Tinsmithing	7
Tailoring	3
Motor Car Trades—	
Body Building	14
Panel Beating	3
Trimming	3
Painting	2
	40

Yours faithfully,

(Sgd.) JAMES NANGLE,
Superintendent of Technical Education.

TRAINING OF BLOCKBOYS.

It will not escape notice that the basis of Mr. Nangle's report is "some systematic selection to secure a good type of boy."

This ushers in the medical aspect of the scheme, and the City Health Officer might now be asked to draw up some standard of physical and mental efficiency which must be fearlessly enforced.

PROPOSED REGULATIONS.

Regulations based in the letter and spirit of Mr. Nangle's report are as follows:—

REGULATIONS.

1. Appointments shall be made under two grades (a) and (b).

Grade (a)—

Object—Education with intention of entering some skilled occupation.

Conditions—Age: Appointment 14 to 14½ years. Termination of appointment 17 years, and shall not be eligible for re-appointment as a Block Boy.

Attendance: Educational classes not less than 85 per cent.

Attendance: Physical Culture Classes—not less than 85 per cent. or as otherwise directed by the City Cleansing Engineer.

Grade (b)—

Object—No definite intention of learning any skilled occupation.

Conditions—Age: Appointment not to exceed 16 years. Training in any semi-skilled work must be accepted. At the age of 21 must accept any semi-skilled or labouring work in any department offering. Penalty of refusal of same to be dismissal.

Attendance: Educational Classes not less than 85 per cent., or as otherwise directed by the City Cleansing Engineer.

Attendance: Physical Culture Classes—not less than 85 per cent.

GENERAL.

1. Educational and physical classes whether during working hours or after hours shall be conducted under the ordinary rules and regulations of Council applying to usual duties, and offenders against discipline and instructions of teachers shall be liable to disciplinary action.
2. All boys must submit to medical examination at 4 monthly periods.
3. Where unsatisfactory results to training are traceable to dissipation of any kind, then the boy concerned shall be liable to dismissal.

UNIFORMS.

It is easily observable that the Block Boy works in dense or fast moving traffic, and consequently that some measure of protection from accidents is due. The Block Boy is not an ordinary pedestrian or jay walker, but by his occupation a privileged unit of the traffic. A policeman on point duty in civilian clothes would have a hard job dodging the traffic let alone controlling it. Accordingly the Block Boy also should be readily distinguishable by some mark of office as in the manner shown by photograph (Schedule E). The photograph shows one of our boys in an apron overall with peaked cap—the whole outfit costing 25/-. The cap should last one year and the overalls six months; hence the total cost for a force of 140 boys would approximate £300 p.a.

SOCIAL.

The gymnasium instructor engaged must be capable of organising and arranging athletic competitions in and out of the service. Social evenings, popular lectures, etc., all fall within the range of a zealous and competent official.

THE RESULT.

I have no hesitation in stating that the Block Boy is capable of becoming a thoroughly efficient labourer under the scheme outlined. Now the service numbers about 5,500 men, including skilled grades and labourers. Annually this is depleted by approximately 121 men for various reasons, deaths, etc.

In the Block Boy Staff of, say, 140 units actually some 16 boys on an average attain their majority annually.

The significance is apparent. The Block Boy Staff as a training and recruiting ground for the service generally would assume added importance.

STAFF.

It is desirable that the official designation of the various grades should be descriptive of the duties actually performed pursuant to this concerning the field staff; I make the following recommendation:

Officer.	Present Designation.	Recommended Redesignation.	Grade.
P. A. Singleton	Chief Clerk	Chief Assistant	£625.
J. P. Deppe ..	Contracts and Complaints	Routing Officer	Grade 9, 2nd Scale
A. Blackwell ..	Inspector	Inspector	„ 9, 1st „
R. Beashel ..	„	Dist. Supt.	„ 8, „ „
L. Picot	„	„	„ 8, „ „
H. Bryant ..	„	„	„ 8, „ „
W. Booth	„	„	„ 8, „ „
J. Hackett ..	Sub-Inspector	Liaison Officer	„ 8, „ „
W. Tuttiett ..	„	Relieving Supt.	„ 7, „ „
H. Mansfield ..	„	Foreman	„ 2, 2nd „
J. Smith	„	„	„ 2, „ „
E. Strong.. ..	„	„	„ 2, „ „
T. Jones	„	„	„ 2, „ „
J. Clements ..	„	„	„ 2, „ „
A. Coates	„	„	„ 2, „ „
H. Drury	„	„	„ 2, „ „
F. Burns	„	„	„ 2, „ „
E. O'Connor ..	„	„	„ 2, „ „
J. Gorman ..	Driver in charge Destructor	„	„ 2, „ „
F. Eager	„	„	„ 2, „ „
J. Montgomery	„	„	„ 2, „ „
O. Silva	„	„	„ 2, „ „
J. Muldowney	„	„	„ 2, „ „
E. Carlysle ..	„	„	„ 2, „ „

The grades are to be taken to indicate the relative positions of the officers concerned, which should be maintained in any alterations in salaries which may be granted from time to time.

Mr. Singleton has been associated with the Cleansing Service for varying periods since 1914. He possesses a thorough knowledge of the requirements of the Cleansing Service, and has shown administrative ability. Since the creation of the Department Mr. Singleton has acted as my Chief Assistant and in my absences has been in control of the Department.

Mr. Deppe has spent practically the whole of his service with the Cleansing Department; much of the re-arrangement and routing work conducted during the past six months has fallen on him. He has carried it out very efficiently.

Mr. Blackwell, at present, is the Senior Inspector. For over ten years he has been in charge of that section of the Department most intimately in touch with the public—the Trade Refuse Division—with success.

Inspector	R. Beashel	The term Inspector is a misnomer. The work calls for a name more in keeping with it. That of District Superintendent meets the case.
,,	L. Picot	
,,	H. Bryant	
,,	W. Booth	

Sub-Inspector Tuttiett has relieved the various Inspectors from time to time, carrying out the duties efficiently.

The next grade would be that of foreman, this term entirely displacing that of Sub-Inspector and drivers in charge at the Destructors.

I find that there is too great a gap in supervision from the present Sub-Inspector to the carters, drivers, etc.

The grade of foreman should be extended to that of sub-foreman and leading hands. Beyond the extra rate of remuneration allowed neither grades need be considered additional expenditure, as occupants of both grades would be required to carry on their ordinary duties in addition to that of limited supervision.

Two Officers yet remain to be considered, that of Refuse Disposal Officer and Liaison Officer before referred to.

The Laboratory report reflects great credit on the energy and perserverance of Mr. R. Newman, a chemist, who holds the highest qualification in his profession. Mr. Newman was appointed chemist in the Electricity Department Laboratory, to specially carry out a close investigation into the city's refuse.

I recommend that this officer be transferred to the Cleansing Department, and designated Refuse Disposal Officer, and placed on Grade 8.

Sub-Inspector Hackett has held the position of Acting Inspector for extended periods. He has proved himself a capable officer. I recommend that Mr. Hackett be designated Liaison Officer and graded the same as District Superintendent.

Should Council approve of an energetic Street Dirt Prevention Policy, as an essential means to clean streets at reasonable costs, then I am sure that Sub-Inspector Hackett will soon successfully identify his name with this objective.

LEO. STEVENSON,

City Cleansing Engineer.

27th May, 1926.

(This Report was issued previous to the City Cleansing Report as explained hereunder.)

CITY FUND GARAGE.

ADJUSTMENTS AND ADDITIONS.

Part 1.

The following matter forms part only of a City Cleansing report, which will be immediately issued on the early completion of Laboratory work relative to the classification of City Refuse.

Circumstances, arising from the confused notions concerning the legitimate functions of the Garage, have made necessary the disconnection and submission of this sectional report, which however may be accepted as complete.

The refuse of the City approximates 80,000 tons per annum and the medium of its travel from collection point to disposal point is wheels and many of them. In fact, City Cleansing work and transport are almost synonymous terms, to such a degree does the latter constitute the former. However, digression into the subject of City Cleansing has been avoided except where reference has been made to the erection of a new destructor with steam laundry, workshop and garage, for the sake of clearness and to show a certain relationship.

This report consists of two parts:—

(a) An exposition in detail of the 2nd clause of the Lord Mayor's minute in the form of a charter and prefaced by a brief analysis of mechanical transport.

(b) Recommendations affecting both the Electricity Fund and City Fund Garage activities, aiming at a cheaper garaging for Council units and the segregation of Public Trading.

In connection with part (a) it will be convenient to quote that part of the Lord Mayor's minute dealing with the City Fund Garage.

It reads:—

2. That all other mechanical propelled vehicles at present handled at the Garage and also the Trading Account undertaking be under the direct control of the Garage Superintendent, who will be responsible to the City Cleansing Engineer as a Departmental Head.
3. That the rental value of the area to be occupied by the Electricity Department be determined by the City Assessor and such amount credited to the Garage Account.
4. That the allocation of the staff by mutual agreement between the Town Clerk, General Manager, Electricity Department, City Cleansing Engineer and Garage Superintendent.

This instruction in a concise manner establishes the principle of a central garage arrangement relative to all Departments.

The factor which is most essential to the successful establishment of a central garage arrangement is goodwill and complete understanding between each Department and the garage which exists mainly for their service. Unfortunately, such goodwill and understanding is at present almost entirely absent.

Whatever faults may be placed to the discredit of the Garage as contributory to this state of affairs, I am convinced that one important defect is shared by all concerned. This defect is the absence of a clear concise consideration of all the various factors or elements that go to constitute the entire job of running a large fleet of mechanical transport units either cars or commercial units. Without this consideration no clean outline in the division of authority and responsibility can exist between Garage and Customers (Departments).

A clear outline of demarcation definitely allotting authority and responsibility is all important, for once this is attained each fault as it occurs and is recorded can immediately be referred to the correct authority for immediate remedy and future prevention.

Such division of authority, however, can only be made after analysis of the job of mechanical transport from its supervision aspect and at the risk of stressing the obvious. Such an analysis is here given.

ORGANISATION.

Supervision of Transport.

A consideration of the entire existence of a single car or lorry will show that it is capable of being separated into two well defined parts:—

(a) The machine storage in a garage where the details of adjustment, lubrication, cleansing, etc., receive attention.

(b) The machine's actual life on the road engaged in useful work.

In the case of one machine, organisation, if any, is a matter of taste, and the driver, usually a person interested, attends to everything in or out of a garage, but once the number of machines is increased to a large fleet, organisation, with close attention to detail, becomes necessary.

Skilful organisation and supervision are essential to show the same durability and economical service from each of many units, used and cared for by disinterested parties as is secured by the driver-owner of a single vehicle.

Such service is obtained by the careful ordering, issuing and checking of stores, supplies, portable plant and tools by careful selection of competent and reliable drivers.

Usually associated with a large garage is a workshop and staff. and the administration of this to secure the economical and first class repair of units involves organising skill and careful and able supervision and a liberal supply of expert knowledge.

Other details requiring the attention of the Garage management are insurance, police registration, and inquiry into accidents.

Garage direction also involves the distribution of the vehicles in such a way that every customer (Department) may secure transport facilities when they are required. Since it is very desirable to avoid having too much money tied up in an unnecessarily large fleet of vehicles, and since transport work is notorious for its fluctuations, the management is faced with such problems as the reconciling of immediate orders, etc. The solution of these problems calls for more than ordinary judgment and foresight.

Once the vehicle leaves the Garage its direction becomes the responsibility of the customer. In addition to the cost of the fuel, lubricant, garage service and general wear and tear, he must pay the wages of the driver, and it is his responsibility to so direct the transport activities of the vehicle that he secures the maximum of service in the time for which it is hired.

It will be seen, therefore, that these details naturally group themselves into two sub-divisions:—

1. Management within the Garage.
2. Direction of transport activities once the unit has left the Garage.

To coin a better term for each:—

1. Garage Control.
2. Transport Control.

These terms will be used hereafter.

The actual distinction between Garage Control and Transport Control may best be illustrated by reference to the familiar case of an individual hiring a taxi. A car in good order and condition in charge of a competent driver is hired by a customer. It proceeds from the garage, and under the direction of the customer satisfactorily performs the service required. On completion of the service it reports back to the garage.

A taxi company's garage relative to all its patrons is a central garage arrangement, and the hiring by departments of vehicles from the City Fund Garage is analagous to the hiring of a taxi by a customer.

The direction by the customer of the movements of the taxi once it has left the garage corresponds to our definition of Transport Control. The management of the Garage which results in the ready supply of a car in good order and condition competently driven and capable of rendering the required service satisfactorily corresponds to our definition of Garage Control.

THE IMPORTANCE OF GARAGE CONTROL.

It is conceded that if the garage providing our illustration did not run its business efficiently and charge moderate rates, its cars would soon disappear off the streets for lack of patronage, but no such correction threatens the City Fund Garage, whose patrons (Departments) willy nilly, as per regulations, are bound to accept the service, even if unreliable and costly. Nevertheless, it is up to the City Fund Garage to submit its credentials and give some assurance of good faith to its patrons.

(5) The welfare of some departments is intimately bound up with the quality of the service rendered by the Garage. The Mechanical Cleansing Department consists of intricate machine sweepers, pick-up and non pick-up types, combined gutter flushing, sprinkling and gully cleansing units of both steam and petrol.

This plant is far more difficult to run and keep in repair than the very much simpler constructed lorry.

In addition to the above plant are six one ton lorries, two trailers, and one two ton freighter, the whole plant costing about £20,000.

Clearly it will be fatal to the Departments' welfare if the Garage work responsible for the efficient upkeep of this plant is defective.

GARAGE RECORDS AND EFFICIENCY.

The internal management of a garage inevitably reflects itself on transport costs, and this, after all, is the business which counts most. To have cheap transport necessitates a systematic compilation of time and cost studies, stores consumption, reliability and mileage record of the various services—from the stop and start work of the garbage lorry to the comparatively non stop sprinkling unit or machine sweeper. Most records that do exist are misleading, which is quite understandable considering the old junk that is still in service.

As a result of the study of the available records, I am of the opinion that it is in the best interests of efficiency that units be replaced after a certain period of service, varying for each type, e.g.:—One ton lorries, four years; two to six ton lorries, six years; and cleansing units generally the same. Steam types may be expected to give 25 per cent. longer efficient service than petrol types. It is recognised, however, that varying conditions of service alter the length of efficient life of units; e.g., an ordinary lorry on a stop and start service such as garbage collection will wear out much quicker than a lorry engaged in non stop work. Therefore, Garage Control shall include the maintenance of detailed and complete records to enable better consideration of a policy of depreciation and replacement of units before their use becomes abnormally costly.

These records will permit the periodical fixing of an efficiency factor to check the retention of inefficient units in service.

When, owing to costly repairs, high fuel consumption, and non reliability the vehicle falls below the required standard, it will be disposed of.

£4 per 1000 miles is considered adequate by some transport men; consumption of stores would be arrived at by means of comparison. Temporarily I have adopted £6 per 1000 miles in striking a hiring rate, and, as no machine should do less than 10,000 miles per year, the annual permissible repair bill would be £60, and to this the Garage Superintendent must adhere if he is to serve with his customer, without loss. Tyres are a separate item and reckoned $\frac{\text{costs}}{\text{mileage}}$ = cost per mile.

GARAGE CONTROL AND TRANSPORT, Etc.

Garage Control and Transport Control have now been explained and defined, and it is clear that Garage Control is a function of the Departmental Head of the City Fund Garage, whilst Transport Control is a function of the Departments hiring the vehicles.

(a) It should be noted that this principle will equally hold good in the City Cleansing Department Staff. The Garage Superintendent is bound to supply transport to Cleansing Inspectors on precisely the same terms as to authorised officers of other Departments.

(b) Pooling of cars.

Hereunder is a time and mileage study of the work done by cars of the various departments for the quarter ending 31st December, 1924. Ref. Deputy Town Clerk's Report—Page 12.

CounCil's No.	Make.	Department.	Miles Run.	Actl. Rung. Hrs.	Poss. Rung. Hrs.	Idling Hours.	Miles per Rung. Hour.
1	Wolseley	Town Clerk	—	—	—	—	—
2	Austin	,, ,,	1,741	345½	489½	143¾	5.03
6	Essex	,, ,,	1,740	341¼	651¾	310½	5.09
7	Hudson	,, ,,	2,702	345¼	580	234¾	7.83
10	**Essex**	**City Engineer**	**2,929**	**464¼**	**621**	**156¾**	**6.31**
11	,,	Assets	1,862	359	593¼	234¼	5.19
14	,,	City Engineer	2,381	378	495¾	117¾	6.30
29	,,	Health	2,029	386¾	625¼	238½	5.24
31	Napier	Town Clerk	923	270¾	306¾	36	3.40
32	Essex	C.B. Surveyor	1,604	343¾	587¾	244	4.66
37	,,	Electricity	2,150	410	611¾	201¾	5.24
38	,,	City Engineer	2,406	278¼	652¼	174	5.03

Decidedly the studies indicate what a more efficient use of the cars would result if pooled.

By the term Transport Control, it has been already laid down that the reasonable use of any unit is the responsibility of the customer (an authorised officer).

Only in the Cleansing Department has the City Cleansing Engineer authority over both Garage Control and Transport Control, each being personified by the Garage Superintendent and the Cleansing Inspector respectively.

Clearly, I would be contravening the principle of this report in attempting to force the pooling of cars on other departments. Also, if carried into effect, I would be helpless in enforcing it efficiently.

For instance, the pool may consist of 12 cars, ample for all reasonable requirements.

Should the cars be not used with economy and needlessly detained, this state of beggar-my-neighbour would quickly exhaust the pool, and really urgent demands for service could not be honoured.

Probably the most economical system of supplying passenger transport would be the provision of an adequate number of small runabout cars, driven by the user, and a small number of large cars with drivers—these units pooled.

This arrangement would require a certain number of cars hired as required for Committee visits.

To follow are regulations which should substantially fix both customer and garage on a firm basis of mutual goodwill and understanding.

The regulations are self-explanatory, the authority being the 2nd clause of the Lord Mayor's minute, upon which the rules are based with meticulous care and accuracy.

DRAFT REGULATIONS: MOTOR TRANSPORT SERVICE.

Municipal Council of Sydney.

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1. OBJECT.

In accordance with the Council's resolution of 19/9/'25.

2. REPEAL OF EXISTING GARAGE REGULATIONS.

Subject to all existing Council and Town Clerk's Regulations and instructions issued to the service generally. All previous departmental regulations and instructions are hereby cancelled.

3. DEFINITIONS.

In construing these regulations the following interpretations shall obtain:—

City Cleansing Engineer shall mean the City Cleansing Engineer, or the person acting as such for the time being.

Garage Superintendent shall mean the Garage Superintendent, or the person acting as such for the time being.

Transport Officer shall mean that officer of each department who is vested with authority to act for his department with the City Cleansing Engineer or his staff, on matters pertaining to transport.

Departments shall mean all departments of the Council's service, with the exception of the Electricity Department.

Motor Transport shall mean every petrol-driven vehicle now under the control of departments, whether used for transport or the haulage of material. It shall include units (steam or petrol) designed for cleansing and street-watering work, but shall NOT include tar mixers, concrete mixers, or other plant used in the preparation of material for road construction.

Responsible Officer shall mean the Garage Superintendent, or other officer deputed by the City Cleansing Engineer.

Garage Control shall mean the authority and supervision exercised over a unit, including its storage and the general preparation, adjustment and repairs necessary to place it in service as an efficient unit.

Transport Control shall mean the authority or supervision exercised by the Transport Officer in the use of a unit in the service for which the unit was designed. The authority of Transport Control shall have effect from the time unit leaves the garage to the time that the unit enters the garage.

Mustering Points shall mean those portions of the streets immediately adjacent to the front or the rear of the Palmer Street garage.

Motor Transport Service shall mean that auxiliary arm of the City Cleansing Engineer's Department provided for by Council for transport purposes. It shall include the administrative staff, the garage or depot establishments, the motor transport, and the personnel engaged either as drivers or attached to the garage.

4. Nothing in the regulations shall be construed to abrogate the powers or control of the Town Clerk as administrator of the Service.

4a. CONTROL.

The Motor Transport Service shall be under the absolute control and management of the City Cleansing Engineer.

5. RESPONSIBILITIES OF CITY CLEANSING ENGINEER.

Generally: The City Cleansing Engineer shall be responsible for the efficient and economical working of the motor transport service.

In particular (in accordance with the existing regulations of the Council) :—

- i. The provision and maintenance of motor transport with a fleet of vehicles of such design, class and tonnage as to be capable of efficiently meeting the ordinary demands for transport from the departments of the Council.
- ii. Employment of a staff of competent drivers, mechanics and others skilled in particular trades required for service peculiar to every department.
- iii. The maintenance of up-to-date establishments capable of comfortably housing the motor transport, and a well equipped repair workshop able to expeditiously carry out any ordinary repairs or adjustments occurring to the motor transport.
- iv. Technical adviser to the Council on all matters relating to the motor transport, such as replacement and purchase of vehicles, and the compilation of necessary specifications.
- v. The conducting of a public trading concern on business lines.
- vi. The protecting of Council's interests on all matters usual in a well-conducted business of motor transport, such as insurance, claims, and observance of Traffic Act, etc.

6. RESPONSIBILITIES OF DEPARTMENTS.

(a) The City Cleansing Engineer, by reason of his responsibilities, to be considered as analagous to a contractor and the departments' hirers of transport facilities.

(b) Departments' responsibilities, which in the past extended to the purchase, care and maintenance of a fleet of vehicles for their use, are now one of direction of the work of the units of the motor transport service requisitioned for as hereinafter provided.

7. EXTENT OF CONTROL OF DEPARTMENTS OVER UNITS OF MOTOR TRANSPORT SERVICE.

The personnel of the motor transport service are employees of the City Cleansing Engineer's Department and are attached for duty to departments to carry out, under direction, transport work. Transport Control is the province of Transport Officers of the departments, and the City Cleansing Engineer or his responsible officer shall have no voice in the matter except in the case of non-observance of the provisions of the regulations. The Service provides vehicles and their drivers.

Drivers.—The driver, while so engaged with departments, shall—

- i. Be subject to the discipline of the section to which he is attached.
- ii. Obey all reasonable directions of his supervisors for the time being.

Vehicles.—Drivers are responsible to the City Cleansing Engineer, or his responsible officer, for the care and economical working of their machines, and departmental officers shall have no jurisdiction over the mechanical working of the vehicles allotted them.

8. METHOD OF REQUISITIONING TRANSPORT OTHER THAN CARS.

(a) Demand for transport shall be made by requisition signed by Transport Officer to the City Cleansing Engineer or his responsible officer.

(b) To suit the conveniences of departments, standing REQUISITIONS may obtain.

(c) Requisitions shall state the following information:—

- i. Class of vehicle and tonnage.
- ii. Work upon which it is to be used.
- iii. Rendezvous (if other than the MUSTERING POINT).
- iv. Length of time required.

(d) Unless in case of urgency, Transport Officers are to forward their requirements for the following day's work to the City Cleansing Engineer, or his responsible officer, by 5 p.m. daily.

(e) Where transport greatly in excess of ordinary requirements is desired, the City Cleansing Engineer, or his responsible officer, shall receive 48 hours' notice.

9. METHOD OF HIRING PASSENGER CARS

(Contingent on pooling system being adopted).

(a) Departments shall forward to the City Cleansing Engineer, or his responsible officer, the names of officers who may use Council's cars. The Town Clerk's approval to such names shall be first obtained.

(b) Officers requiring the services of a car shall advise the City Cleansing Engineer, or his responsible officer, of their requirements, and shall state:—

- i. Where car is to report.
- ii. Probable duration of hire.
- iii. Destination.

(c) On completion of its work the car is to be returned to the garage.

(d) Officers shall sign the log sheet of the driver on completion of hire.

10. MOTOR TRANSPORT OTHER THAN PASSENGER CARS.

GENERAL.

1. The maximum carrying capacity is painted on each vehicle, and such tonnage shall not be exceeded.

2. Vehicles designed for particular duties are only to be used on such duties.

3. No vehicle is to be taken across any ground, hill or place likely to damage its mechanism.

4. All labour for loading and unloading of vehicles shall be provided by departments.

5. Material of such a nature by reason of its size, bulk or composition, requiring a specially designed body and a stated tonnage, shall not be loaded on any vehicle not so adopted.

6. Motor transport, on completing its work, shall be sent back to the garage.

7. Supervisors shall, except where overtime is being worked, allow drivers of motor transport reasonable time for the journey back to the garage, to house their vehicle, and sign off at the knocking-off time as laid down in the Award.

8. Drivers shall not be requested to drive their vehicles at a greater speed than laid down for their class.

9. In cases of breaches of discipline on the part of drivers, they shall be sent to the garage, and, as soon as possible afterwards, supervisors will forward a report to the City Cleansing Engineer.

10. Supervisors will take all necessary steps to safeguard the Council's interests in the event of accidents.

11. Unless otherwise arranged, transport will report to the Transport Officer at the mustering point.

12. The City Cleansing Engineer shall accept the responsibility for the payment of demurrage or other charges, the result of failure to supply transport requisitioned in the ordinary way.

13. Charges for motor transport shall be by time. The times of hire shall be computed from when the vehicle reports to the mustering point until its return to the garage, less the allowance for the usual meal hours.

14. Transport Officers shall immediately return to the garage any units that have developed mechanical troubles.

15. In the event of a breakdown, the drivers will communicate with their supervisors or the garage for orders.

16. The City Cleansing Engineer, or his responsible officer, will replace disabled vehicles expeditiously.

11. CAR HIRE. GENERAL.

(Contingent on pooling system being adopted.)

1. Specific cars will not be allotted any officer, with the exception of the Town Clerk.

2. Charges shall be for actual driving and waiting time, but shall not include mileage to and from meeting place.

3. Cars shall not be sent on messages.

4. No car shall be parked in the Town Hall enclosure or in adjacent streets while officers remain in the Town Hall for AN UNREASONABLE LENGTH OF TIME.

5. Those officers whom Council permit to drive a car shall:—

(a) Return a duly completed log sheet to the City Cleansing Engineer, or his responsible officer, daily.

(b) Either drive the car to the garage or have it driven there when not using it for a lengthy period.

12. CHARGES.

Motor Transport (other than cars).—Charge shall be by time and shall fall under three headings:—

1. Ordinary.
2. Hours when Award provided time and a half pay.
3. Hours when Award provided double time.

Cars.—Charge shall be computed on the actual mileage and waiting time (no difference between night and day).

The charges shall be fixed by a conference of the Town Clerk, City Treasurer and the City Cleansing Engineer, and shall be reviewed quarterly. The books of accounts for the previous three months shall be the basis upon which charges are to be fixed. The priniciple to be adopted will be the elimination of all profit.

(SEE SCHEDULE "H.")

13. RECORDS.

The City Cleansing Engineer shall keep records of costs, mileage, petrol consumption, tyre wear, and such other information as may be required by Council of all UNITS of the motor transport service.

14. FINANCIAL AND COSTING.

The City Treasurer as heretofore shall carry out the accounting and costing of the motor transport service by his own staff.

All expenses incidental to the motor transport service shall be charged to Estimate 40. Such estimate shall be credited with the value of service rendered departments by transport and other facilities.

The City Treasury officials at the garage shall be subject to the discipline of the office in which they are located.

The method of accountancy adopted shall be a matter for the City Treasurer, but he shall have prepared, at the request of the City Cleansing Engineer or his responsible officer, any returns, statements or analysis required for the purpose of enabling the latter to perfectly understand the financial position of both the motor transport service and the public trading system.

The Treasury officials at the garage shall supply any information relating to the working of the garage at the request of the City Cleansing Engineer or his responsible officer.

15. GARAGE ESTABLISHMENTS.

(a) Unauthorised persons shall not, under any circumstances, be permitted to enter the garages of the City Cleansing Engineer's Department, other than the offices.

(b) Authorised persons shall be the following employees of the City Cleansing Department:—

i. Administrative and clerical staff.
ii. Employees of the garage and workshop.
iii. Drivers of motor transport.

(c) No person shall take any motor transport from the garages or depots except under instructions of the City Cleansing Engineer or his responsible officer.

(d) No driver of motor transport shall permit any person to drive the machine he is in charge of for the time being.

16. STORES.

In accordance with the Stores Regulations the Comptroller of Assets shall have charge of the stores necessary for the motor transport service.

The City Cleansing Engineer, or his responsible officer, shall advise the storekeeper as to minimum and maximum stocks to be kept.

The choice of particular lines of stores and accessories shall rest with the City Cleansing Engineer.

17. PUBLIC TRADING.

18. POWER TO HIRE MOTOR TRANSPORT.

Fluctuations due to seasons and times occurring, the City Cleansing Engineer, in order to meet the demands of departments, is empowered—

i. To take over from departments the control of contracts already in existence for motor transport.
ii. To hire motor transport from private source (in terms of Council's regulations).

19. ALTERATIONS OR MODIFICATION OF REGULATIONS.

No departure from the regulations shall be made except by resolution of Council or by authority of the Town Clerk.

20. GENERAL.

1. Alterations to vehicles or the addition of any particular device will be added on requisition at the expense of the department concerned.

2. The City Cleansing Engineer, or his responsible officer, shall not send any driver to a department in the event of the head of the department concerned having an objection to such driver.

INSTRUCTIONS TO DRIVERS OF MOTOR TRANSPORT.

1. Motor drivers are employees of the City Cleansing Engineer's Department, and for the purposes of discipline are answerable to the City Cleansing Engineer.

2. Drivers, with their vehicles, will be placed at the disposal of departments of the Council for transport purposes. Whilst so engaged, the drivers will be subject to the discipline of the section to which they are attached, and shall obey all reasonable directions of their supervising officer for the time being.

3. The driver is responsible for careful handling and economical working of the vehicle allotted him, and he will report at once to his supervising officer any mechanical troubles that develop which may endanger traffic or be detrimental to the vehicle's mechanism.

4. A driver, when engaged on work for the department, on meeting with a mishap shall at once communicate with the City Cleansing Engineer and his supervising officer, and await at the scene of the mishap for instructions.

5. Drivers shall keep such accurate records as required of them by the City Cleansing Engineer or his responsible officer.

6. The duties of a driver shall include the care of his vehicle—

   1. Oiling.
   2. Greasing.
   3. Filling with benzine.
   4. Examination of parts.
   5. Filling of radiator.
   6. When required, the washing of vehicle.
   7. Cleaning of engine.
   8. Any other work on the car or in the garage he may be instructed to perform.

7. A driver, on completing the work allotted to him, will take the shortest route to the garage and report.

8. Drivers will enter up the Log Book on their departure and return to the garage on every occasion. They will also sign the time clock as required by Council's regulations.

9. Drivers are forbidden to use the Council's vehicles for conveyance to meals or their place of residence. When employed with departments they will *not* return to the garage for meals.

10. ACCIDENTS.—Procedure to be adopted by drivers on meeting with an accident (no matter how slight), where damage is done to—

   (a) Private property or individual.
   (b) Council property or employee.
      i. Obtain full name and address of a witness or witnesses.
      ii. Obtain full particulars of injured party or property.
      iii. Report, as soon as possible, the matter to his supervising officer, who will send him direct to the garage to interview the Garage Superintendent.

iv. If it is not possible for driver to report direct to his supervising officer, he must immediately telephone Garage Superintendent, giving particulars, and await instructions.

v. No information of any kind must be furnished to any outside person, and the Tramway authorities have been notified that any information concerning accidents between their vehicles and those of the City Council must be obtained from the Garage Superintendent, Palmer Street, City, as drivers must not be interviewed, as such interviewing might prejudice the Council's interests.

Part 2.

RECOMMENDATIONS.

1. Permanency of severance of Electricity Fund Garage activities and its removal elsewhere.

2. The top floor space vacated by the Electricity Department to be made available for Public Trading, including the garaging of private cars; the bottom floor, for the time being, being confined to the City Fund units only.

3. When the top floor is almost entirely let to Public Trading, the services of an officer, styled Public Trading Officer, to be secured, whose sole duty will be the expansion of the Public Trading business, temporarily under the direction of the Garage Superintendent.

4. The policy of total substitution of Public Trading for that of Council work to be adopted at Palmer Street garage, with the withdrawal of the latter activity to a more economical garaging locality in juxtaposition to a new destructor to be erected at Pyrmont.

5. The Garage Superintendent to take full charge of the new City Fund garage and plant adjoining, and the Public Trading Officer to have entire control of the Palmer Street garage.

6. The Palmer Street garage then to be titled Public Trading Garage, and the new garage at Pyrmont destructor to retain its name of City Fund Garage.

7. Engineers' workshop, plant and staff at Wattle Street depot to be removed to and forms part of the City Fund Garage at Pyrmont, with the exception of a small staff to constitute, with carpenters and painters' section, a complete unit under the City Engineer.

8. As the necessity develops, the Public Trading Garage to be remodelled to meet the service required; enlargement of office and store space, provision of adequate lavatory and toilet accommodation for patrons.

As introductory to the consideration of expenditure items contained hereafter, it should be borne in mind that whatever step Council may choose to take, expenditure is practically unavoidable.

INADEQUACY OF PRESENT ACCOMMODATION AT PALMER STREET.

The congestion of machines now stored at Palmer Street garage is serious, want of space hampering the coming and going of units; and in case of fire, serious loss would be inevitable.

Already, to relieve congestion, premises in the neighbourhood have had to be rented. Adequate offices, waiting room and lavatory facilities are essential for transport officers, drivers and machine crews. Such accommodation should be apart and not connected with the interior of the garage. The reverse of this now holds good at Palmer Street garage, and its correction is a matter of urgency.

Whilst Palmer Street locality is well situated for public trading purposes, for Council garaging, a cheaper situation should be found when expansion is intended.

SEVERANCE FROM ELECTRICITY DEPARTMENT.

I have no desire to intrude upon matters affecting another department, and trust the following suggestion will not offend: The Electricity Department is in possession of unused land in various localities, and the congestion of Palmer Street could be best relieved by the department's building its own garage on available land, if suitable.

Consideration of this step immediately raises the question of the permanent severance of the Electricity and City Fund Garages.

Investigation of both staff and mechanical units composing the Electricity transport will show that they differ largely from ordinary type. The former is composed of electrical mechanics, fitters, meter fixers, etc.; the latter of machines that, with few exceptions, would be useless for any service but that for which they were designed. Also the service carried out by this organisation is equally peculiar. Its geographical ramifications embrace such far-flung localities as Hornsby, La Perouse and Guildford. Added to this are the emergency calls likely to be made day or night, irrespective of holidays or conveniences.

This S.O.S. demand is met by unusual service—telephones and petrol lorries form part of the household equipment at widely-distant points, of members of the staff connected with the Electricity Supply. This emergency service is more a workshop on wheels, and fast-moving wheels to beat the clock.

Such a service must be very adjacent to the administrative table and must be supervised direct and not through the courtesy or organisation of any intervening department.

The removal of the Electricity Department Mechanical Transport elsewhere will at once relieve the congestion of Palmer Street garage, and make possible the energetic prosecution of Public Trading.

PUBLIC TRADING.

As a confession of faith I have to record that I am not a Public Trading enthusiast. Probably in no enterprise is competition so keen as in this class of work, and usually a private business competitor has advantages over Government or semi-Government institutions. However, arguments in favour of Public Trading are by no means non-existent. A few are:—

(a) The Council has a property at Palmer Street, a locality splendidly situated for Public Trading purposes.

(b) The Public Trading staff could form the future nucleus organisation for wholesale garaging of street cars, said cars now being parked along the streets to the encumbrance of traffic.

Decidedly, if Public Trading is to continue, then it should be pushed on with vigour and enterprise, tempered with businesslike caution. It is outside the province of this Report to project a wide and ambitious scheme ranging into the far future.

For the present, facilities and advantages already existing should be availed of to make business connections, also to form an organisation sufficiently efficient to compete with success in the open market. Despite the changes and travails that have befallen the garage, an astonishingly large Public Trading connection still persists. This could be greatly augmented by the letting of the entire top floor for garaging private vehicles, after vacation by the Electricity Department.

There is no reason to doubt that the successful garaging of private cars will bring trade to both workshop and stores—the latter particularly in the sale of lubricants and in ''good line'' accessories, tyres, etc. The work of building up Public Trading somewhat on the lines stated should continue until the top floor is almost entirely occupied.

PUBLIC TRADING OFFICER.

When this stage is reached it will be necessary to secure the services of an officer whose duties will be solely connected with this work. This officer should be an engineer with a first-class experience in automobile machinery, salesmanship and business connected therewith.

Equally necessary in this officer is competency and practice in the direction of staff, particularly of an industrial type. Enthusiasm and energy are paramount qualities. He should be styled Public Trading Officer, and his salary fixed to compensate with the rather unusual combination of qualities specified.

Whilst the Public Trading activities are being carried on under the same roof as the City Fund garage, the Public Trading Officer should take service under the Garage Superintendent.

SEVERANCE OF PUBLIC TRADING GARAGE AND CITY FUND GARAGE.

If the entire top floor of the City Fund garage in Palmer Street is, as suggested, entirely devoted to Public Trading, and the bottom floor reserved for City Fund service units, it is probable that in a very short space of time expansion of Public Trading will necessitate the provision of increased accommodation. The policy already suggested in regard to the City Fund Transport could then be further applied by withdrawing City Fund Council units to a more economical garaging locality, permitting the entire substitution of Public Trading at Palmer Street.

Up to the present time a condition has existed that should not be tolerated a day more than is necessary—the indiscriminate mixing of Public Trading and the Council's internal service. Public Trading in all its phases should be segregated to the greatest possible degree from all other Council services.

In the event of the use of the whole of the Palmer Street garage for Public Trading, this end would be achieved by the removal of the Garage Superintendent and necessary staff to the new garage, to be used for Council's purposes only, and the Public Trading Officer put in full charge of the Public Trading garage. Pursuant to this policy, the Garage Superintendent and necessary staff should be withdrawn and the Public Trading Officer put in full charge of what henceforth will be titled the Public Trading Garage.

PARTIAL USE OF PUBLIC TRADING GARAGE FOR CITY FUND UNITS.

The City Fund garage may be, however, a customer for garage space at the Public Trading garage.

Emergency calls, dust storms, rain flooding gullies, etc., may make it necessary that certain units be stationed at the Public Trading garage to serve the Eastern side of the City.

CONTROL OF PUBLIC TRADING.

It is now necessary to briefly review salient features in organisation of a municipal garage solely devoted to Private Trading.

To be strictly fair to the Public Trading Officer, single control should obtain.

This is difficult of achievement, the City Treasurer and Comptroller of Assets control accounting and costing, and handling and sale of stores respectively. I do not think that a sectional departure from this general arrangement is advisable, and therefore single control not being practicable, I would substitute singleness of purpose in the entire garage staff, including those officers of the above-mentioned departments concerned with the garage management.

This could be easily done by a condition to new appointments that the continuance of the Public Trading Officer and staff was entirely dependent upon its profitable existence.

If hours of duty require extension, this could be met by added remuneration or a bonus. The point never to be lost sight of is that every man on the job is a potential salesman of some kind.

PERPETUAL SUPERVISION OF PUBLIC TRADING GARAGE.

On no class of business connected with machinery is constant supervision, either actual or potential, as necessary as in garage work.

The advent of the automobile has enriched our vocabulary to some degree with terms such as petrol milking, joy riding, etc.

To increase the potential supervision of the Public Trading Officer over the property entrusted to his charge, the erection of a residential flat on the garage roof is recommended. This addition, I have been advised, would cost approximately £900. It would be a condition of appointment that the Public Trading Officer must reside on the premises.

REMODELLING AND EXTENSION OF PUBLIC TRADING GARAGE.

In some stage of Public Trading development office accommodation and store space will require remodelling—the existing facilities are inadequate, contributing to inefficiency. The entire Palmer Street frontage (passages excepted) with suitable depth should be earmarked to remedy this fault. The present lavatory conveniences are inadequate even for the staff, and, with a large number of patrons, this and the provision of toilet rooms should be kept in view.

In the case of a Public Trading Officer materialising somewhat in the manner already indicated, it would be unfair to saddle him with an extended programme in which he has had no voice; hence the extension of the garage to the corner block of land. William and Palmer Streets, etc., have not been considered herewith.

THE SITE OF THE CITY FUND GARAGE.

Reverting to the City Fund Garage. In fixing a new site for this activity it is needful to consider it in relation to the future refuse disposal of this city.

The destructor at Moore Park is obsolete and past good repair. The remaining destructor at Pyrmont is absurdly costly, and otherwise unsuited for the purpose required.

The acquisition of a new destructor sufficiently large to deal with all city refuse is no longer optional but imperative, and requirements would be best met by its erection either on the site of or on the land adjoining Pyrmont destructor. This land is Council's property, and ample for the scheme here outlined. By-products of a modern refuse disposal works, in addition to salvage of saleable articles, are heat, steam and power. In addition there is available at Pyrmont destructor locality good spring water. To economically use these by-products, which would otherwise go to waste, I suggest:—

1. The installation of a steam laundry outfit to deal with Council laundry requirements. (Installation £600, labour one man less than half time. Annual laundry bill about £230 p.a.)
2. The appointment of a broom-maker to make and renew Council brushware. (Annual bill, £1,300 p.a. Usual conditions of this work, piece-work.)
3. Transfer of greater part of engineers' workshops at Wattle Street Depot to disposal works. (To form with carpenters and painters' section at Wattle Street Depot one complete workshop unit, a foreman, fitter and mate, blacksmith and striker, tinsmith, hose repairer, should be left, this depot being, of course, under the City Engineer.)

The foregoing projected arrangements, 1, 2 and 3, would admirably flux in with the City Fund Garage organisation, the only requirement being an adequate extension of a building already made necessary by 1, 2 and 3, also by the general requirements of the refuse disposal works.

The garage, during off hours, would be under constant supervision of the officer in charge of works during night or day throughout the year, with the exception of a part of each Sunday, when ordinarily a watchman would be on duty.

From an operative viewpoint the arrangement is equally inviting; what would be more suitable than the motor being able, after dumping its last load, to be promptly backed into the nearby garage?

Additional to the foregoing, it will be profitable to consider other advantages to be derived by combining the City Fund Garage with the projected Refuse Disposal Works.

Transport in a large way employed in municipal work has a variety of services, probably not equalled elsewhere.

These services include ordinary transport, street sprinkling, gutter and pavement flushing, gully cleansing, street sweeping, etc., and the machines to perform these services are frequently specialised in construction, and some are composite; i.e., capable of performing a number of duties efficiently.

This provision mainly is to enable the motor transport to accommodate itself to the varying nature of municipal service. A wet day obstructs work requiring ordinary lorry transport, whilst a hot, windy condition will make necessary the employment of a number of watering motors in addition to others.

Ordinary and emergency demands and their coincidence create a peak load. The point is that the demand is both variable and important. This condition frequently calls for quick adjustment, and at no point can this be more efficiently performed than at a refuse disposal works where units will be almost constantly coming and going.

To a great cosmopolitan city continuity of service is desirable. Dust and rain storms occur regardless of working hours, the former at keen inconvenience, and the latter often attended with loss in "flood areas."

A refuse disposal works is practically a non-stop activity throughout the year. In associating the transport service with the works we attain an organisation capable of attending to the city's needs during off hours with the maximum efficiency.

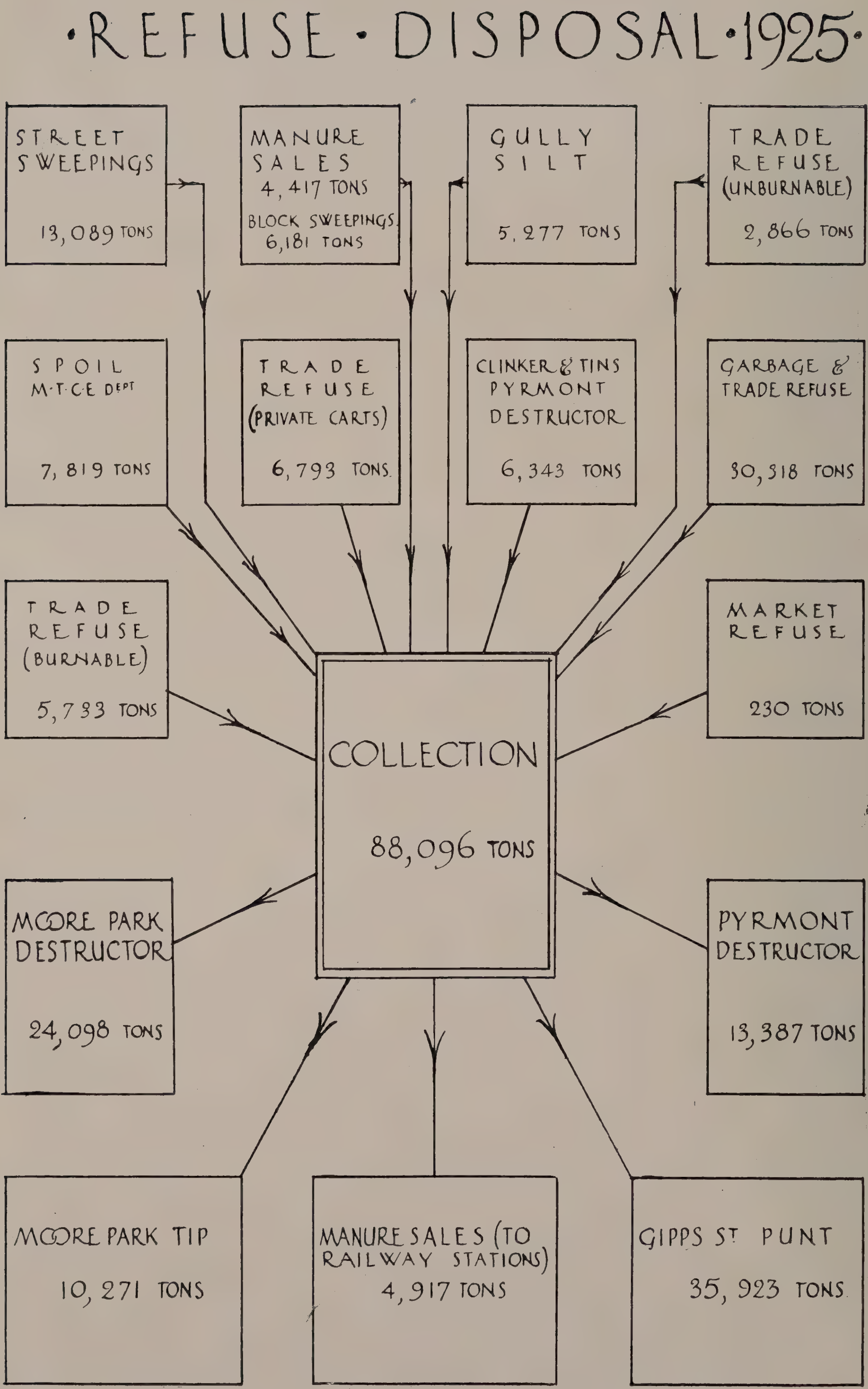
LEO. STEVENSON,
City Cleansing Engineer.

18th March, 1926.

WELLCOME LIBRARY INSTITUTE

SCHEDULE "A."

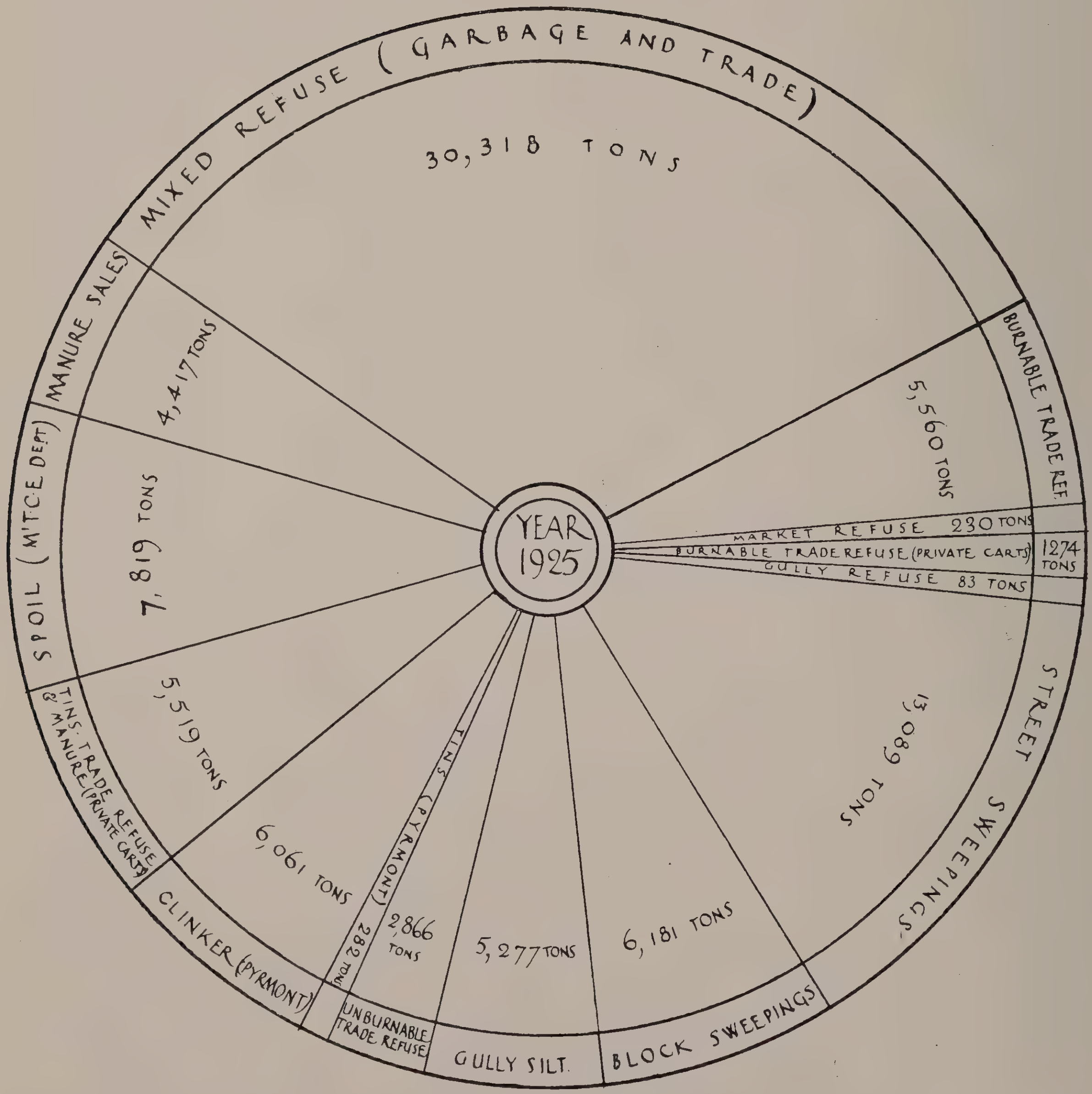
SCHEDULE "A."


·REFUSE · DISPOSAL·1925·
STREET SWEEPINGS
13,089 TONS
MANURE SALES
4,417 TONS
BLOCK SWEEPINGS
6,181 TONS
GULLY SILT
5,277 TONS
TRADE REFUSE (UNBURNABLE)
2,866 TONS
SPOIL M·T·C·E DEPT
7,819 TONS
TRADE REFUSE (PRIVATE CARTS)
6,793 TONS.
CLINKER & TINS PYRMONT DESTRUCTOR
6,343 TONS
GARBAGE & TRADE REFUSE
30,318 TONS
TRADE REFUSE (BURNABLE)
5,733 TONS
MARKET REFUSE
230 TONS
COLLECTION
88,096 TONS
MOORE PARK DESTRUCTOR
24,098 TONS
PYRMONT DESTRUCTOR
13,387 TONS
MOORE PARK TIP
10,271 TONS
MANURE SALES (TO RAILWAY STATIONS)
4,917 TONS
GIPPS ST PUNT
35,923 TONS

SCHEDULE "B."

SCHEDULE "B."

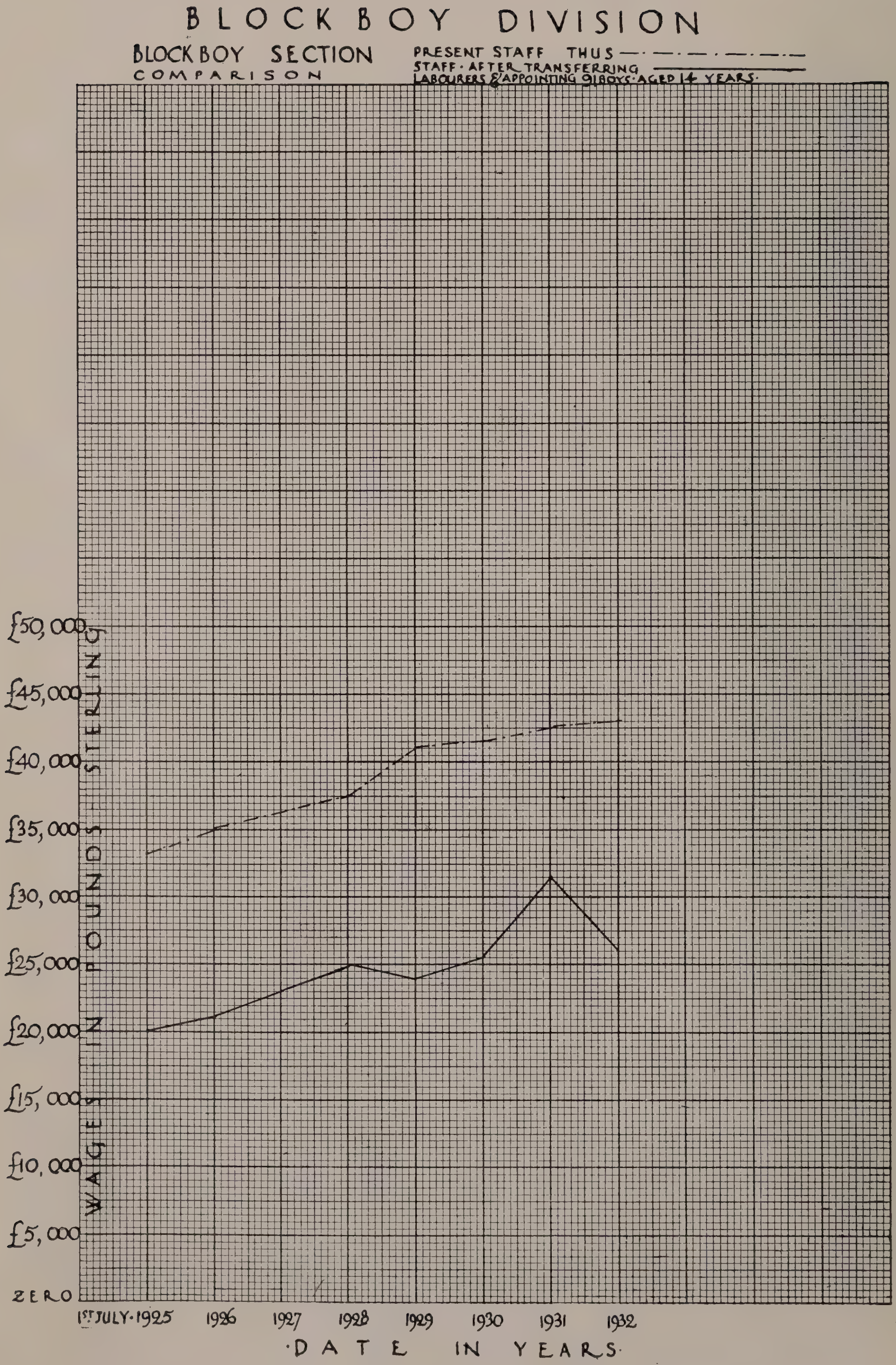
REFUSE DISPOSAL
1925



TOTAL TONNAGE 88,096. TONS.

SCHEDULE "C."

SCHEDULE "C."


BLOCK BOY DIVISION
BLOCK BOY SECTION
COMPARISON
PRESENT STAFF THUS —·—·—·—·—
STAFF · AFTER TRANSFERRING
LABOURERS & APPOINTING 91 BOYS · AGED 14 YEARS.
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£45,000
£40,000
£35,000
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ZERO
WAGES IN POUNDS STERLING
1ST JULY · 1925
1926
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1928
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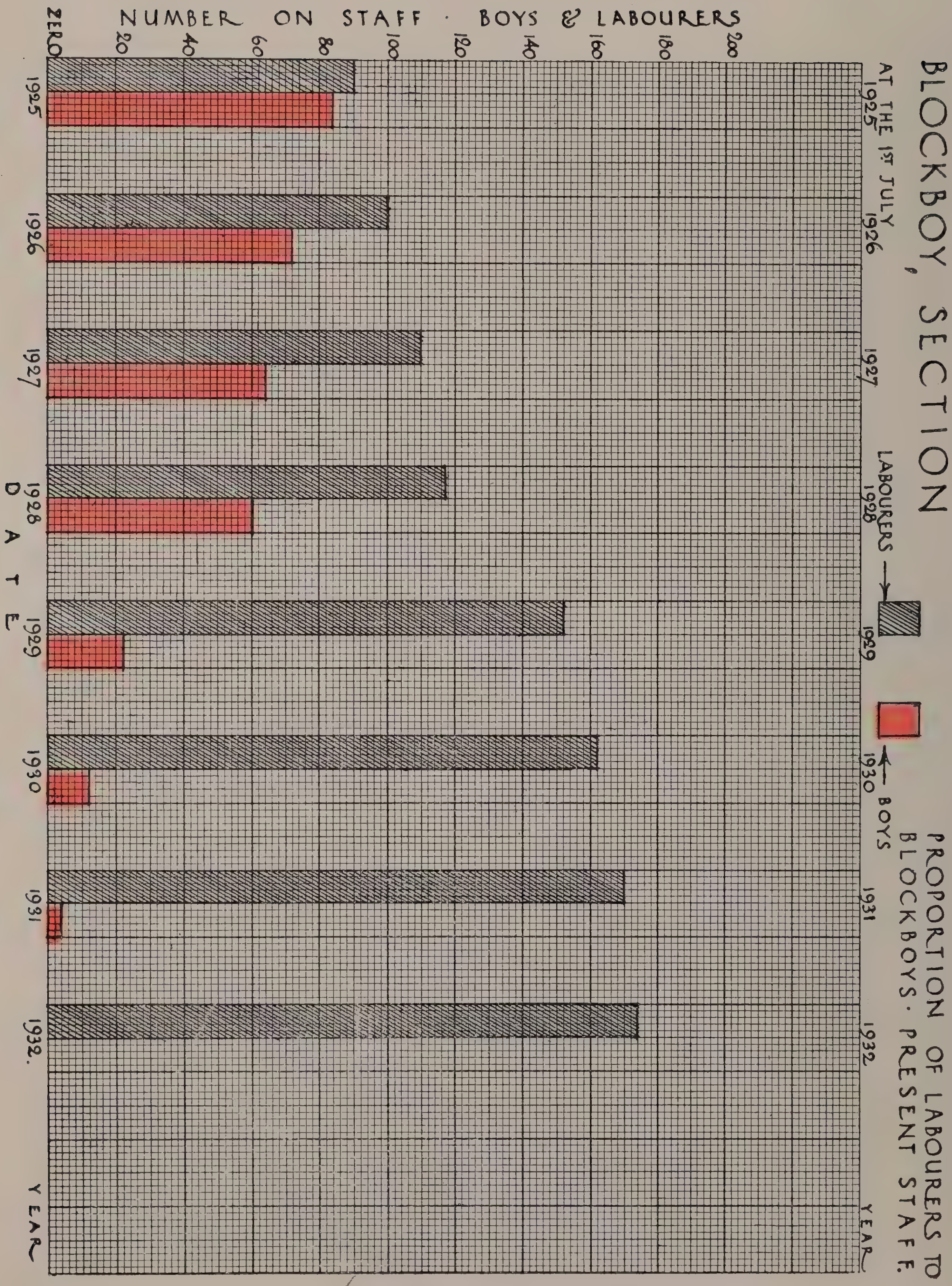
1932
· DATE IN YEARS ·

SCHEDULE "D."

SCHEDULE "D."


BLOCKBOY, SECTION
PROPORTION OF LABOURERS TO BLOCKBOYS · PRESENT STAFF.
LABOURERS
BOYS
AT THE 1ST JULY
NUMBER ON STAFF · BOYS & LABOURERS
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YEAR
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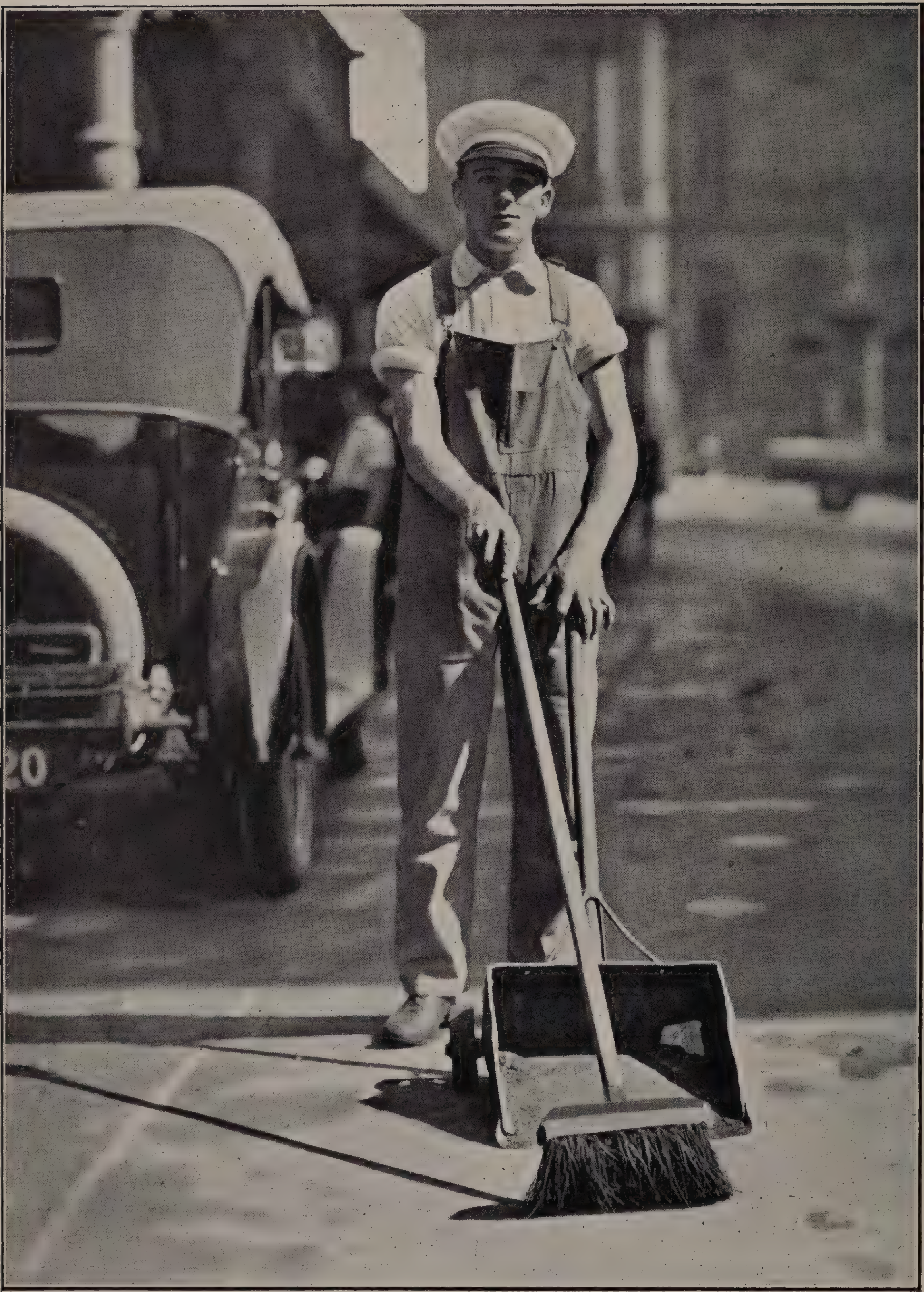
SCHEDULE "E."

SCHEDULE "E."



BLOCKBOY WITH OVERALL AND CAP

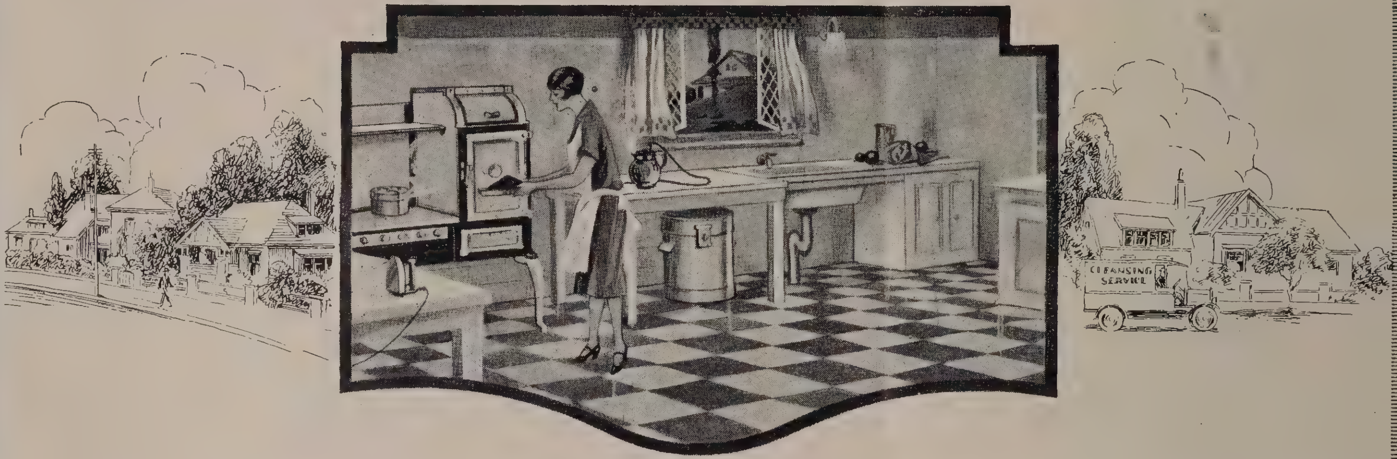
SCHEDULE "F."

SCHEDULE "F."

MUNICIPAL COUNCIL OF SYDNEY

"KEEP YOUR CITY CLEAN"

CLEANSING SERVICE



CLEANLINESS

is a Constant Characteristic of Electricity

Electricity is applied to EVERY service in the home.

It eliminates labor, dirt and discomfort—adds hours of leisure and promotes health and happiness.

THE ELECTRIC IRON

is instantly available — always clean. Ironing is a pleasure — Two hours' ironing for 1d. !

THE ELECTRIC HOT WATER JUG

Three pints of boiling water in five minutes for 1/5th of a penny!

THE ELECTRIC WASHING MACHINE

IS A REVELATION!

A washing day with dry hands and positively no labor. It washes, blues, rinses and DRIES the week's wash for 1d.!

BE CLEAN

and you are Healthy

"Health makes the Common-wealth"

WATCH THE KITCHEN REFUSE

Clean, dry, covered Garbage Tins make a healthy city.

Wet refuse soon becomes foul—uncovered tins breed flies.

THEREFORE !

1. Drain the refuse of all water—wrap in paper before placing in the tin.
2. Always KEEP THE LID on the tin.
3. Wash the tin thoroughly and disinfect each week.
4. Always put out the tin for cleansing man. Be certain to PUT TIN OUT IN WET WEATHER.

   The Cleansing man will call on Monday, Wednesday and Friday or Tuesday, Thursday and Saturday.

GOOD HEALTH, COMFORT AND CHEERFULNESS

Will result from the use of Electricity in the home.

THE ELECTRIC RANGE

turns out perfect cookery for anyone—there is no guess-work. The required top and bottom oven heat is at a switch turn. Utensils always clean. Average cost 1d. per head per day!

THE ELECTRIC VACUUM CLEANER

searches out the dirt and removes it. A house cannot be clean without it—Four hours' cleaning for a 1d. !

THE ELECTRIC RADIATOR

Safe and simple—no work—no dust. Winter comfort at 1d. per hour!

WATCH THAT REFUSE—THE HEALTH OF YOUR CITY DEPENDS ON YOU—DO YOUR SHARE IN THE FIGHT FOR HEALTH

1926 CALENDAR 1927

JULY

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MAY

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29	30	31	..	..	..	..

JUNE

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	..	..

SCHEDULE "G."

SCHEDULE "G."

PREVENTABLE STREET REFUSE

1. Newspaper, newspaper wrappings, newspaper posters.
2. Fruit and peel from—
    - i. Individuals.
    - ii. Barrowmen picking over fruit.
3. Tram tickets and the butts of tickets thrown down by tram drivers.
4. Cigarette boxes.
5. Lunch scraps and paper wrappings from lunches.
6. Overpacked garbage tins.
7. Interference with garbage tins by bottle gatherers.
8. Sweepings from shops by shopkeepers.
9. Clay from wheels of carts drawing from excavations.
10. Metal and spoil, etc., from overloaded, uncovered or unsuitable transport.
11. Chaff from nosebags of horses.
12. Debris swept from trays of lorries after unloading.
13. Straw, paper, wood, etc., from unpacking of cases.
14. Feathers, straw, grain, etc., as the result of roadways being used for sale of poultry.
15. Storage of produce on footways.
16. Manure, papers and other rubbish blown from cart docks.
17. Litter blown from uncleansed private ways and lanes.
18. Sweepings from tramcars and 'buses at termini.
19. Papers from advertising hoardings.
20. Mat dusting.
21. Debris from repairs to motor vehicles in the streets.
22. Spoil washed down from private unformed thoroughfares.
23. Debris left by drainers, plumbers, painters and other tradesmen.
24. Interference with waste-paper baskets by night prowlers.
25. Leaves from trees.

UNPREVENTABLE STREET REFUSE

1. Animal excreta, sputa, etc.
2. Dust from unformed roads.
3. Top-dressing of woodblocks.
4. Mud from vehicles coming from adjacent municipalities.
5. Washaways.

SCHEDULE "H."

SCHEDULE "H."

MOTOR TRANSPORT SERVICE.

Scale of Charges per Hour.

	Morris Truck, 1 ton.	Leyland.				Laffly Sweeper	Elgin Sweeper	Leyland Flusher	S.D. Freighter Cleansing		Morris Truck Cleansing		Passenger Car
		2 ton	3 ton	4 ton	5 ton	Night Shift	Night Shift	Night Shift	Day Shift	Night Shift	Day Shift	Night Shift	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Ordinary Time ..	7 5½	7 5	7 7	7 11	8 4¼	10 5	17 3¾	12 2¼	6 9	7 7½	7 2¼	8 0¾	8 1½
Overtime ..	8 8½	8 8	8 10	9 2	9 7¼	11 11¼	19 1½	13 10	8 0	9 1¾	8 5¼	9 7	9 5¼
Double Time	9 11½	9 11	10 1	10 5	10 10¼	13 5¾	20 11¼	15 5¾	9 3	10 8¼	9 8¼	11 1¼	10 8¾
Maximum Mileage per day	30	30	30	30	30	30	18	18	30	20	30	20	40

These figures are based on estimated cost on the maximum mileage stated, but depreciation and interest on capital invested are not included. They will need revising from time to time.